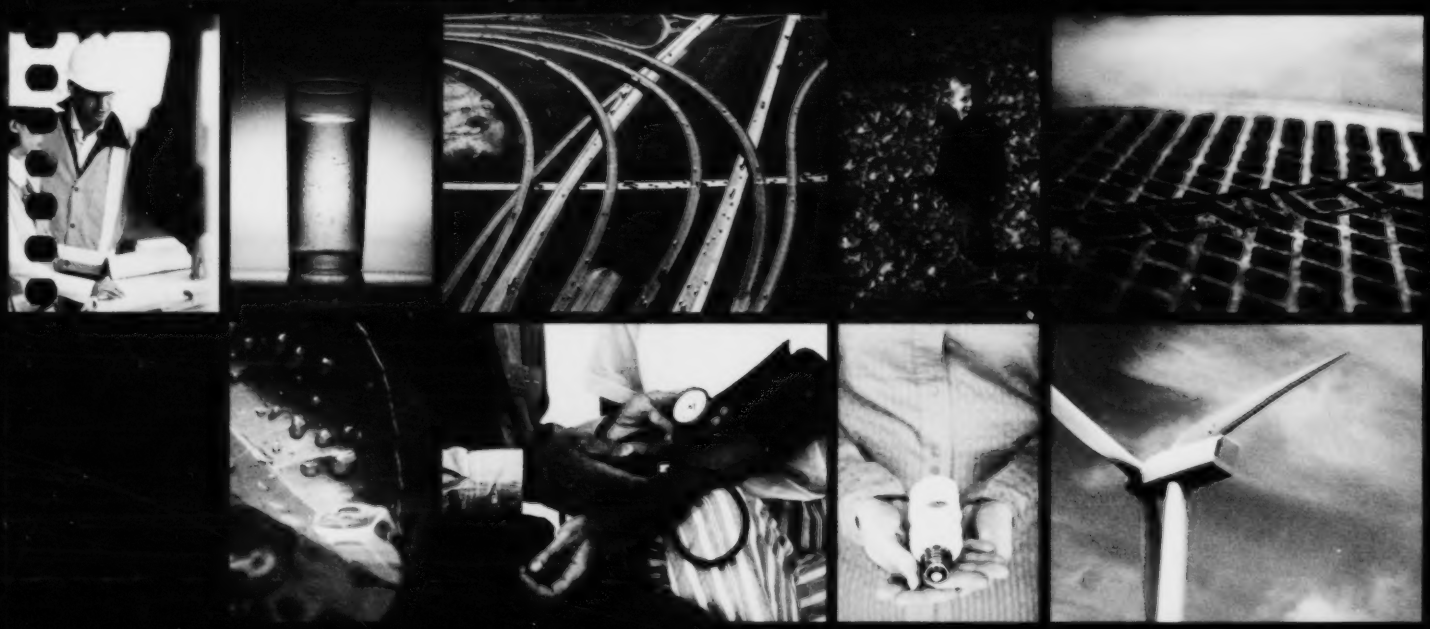
Ontario

Infrastructure Ontario



Delivering Project Success

An Owner's Guide

Ontario

General inquiries regarding *Delivering Project Success: An Owner's Guide* should be directed to:

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INTRODUCTION

INTRODUCTION

Background

In the 2009 Budget, the Government of Ontario committed to invest $32.5 billion in infrastructure over the next two years. As part of this commitment, Ontario is partnering with the federal government to deliver close to $7 billion in new, short term economic stimulus programs for more than 2,700 projects. These projects are aimed at all sectors of the economy, including social housing, postsecondary education, cultural, recreation and other community infrastructure.

The projects in Ontario were chosen after a careful review of applications and on the basis of construction readiness, project merit, and federal environmental assessments. In other words, projects that met the criteria for stimulus funding were considered "shovel ready", so that work could begin quickly and the project could be completed by March 31, 2011.

For approved projects, Project Owners executed Contribution Agreements with the appropriate ministry and became the eligible Recipient of project funding.

With that in mind the Ministry of Energy and Infrastructure asked Infrastructure Ontario, a crown corporation dedicated to the renewal of the province's vital public assets, to share its project management best practices and to develop this project management best practices Guide as a tool to help Project Owners successfully meet their obligations under their Contribution Agreement.

Need for the Guide

This Guide recognizes that the single greatest challenge for Project Owners is to achieve substantial completion of their projects by March 31, 2011, in order to qualify for full funding support under their signed Contribution Agreements. This Guide is intended to alert Project Owners to the various implications that this deadline has for managing projects.

This Guide recognizes that all Project Owners and their organizations are relying on the skills and experience of the individuals that they engage in order to achieve project success. This Guide provides Project Owners with practical and proven tools to help them assess whether they have entrusted the project management responsibility to the right people, and that they are doing the right project management activities to deliver real control and results.

This Guide also recognizes that Project Owners need to be informed and stay informed throughout the project life-cycle so that they can make timely decisions that will enhance the likelihood of project success. This Guide equips Project Owners with the right questions to ask and what the right answer looks like.

Finally, this Guide recognizes that there are administrative requirements to satisfy the terms of the Contribution Agreement and helps Project Owners understand how documentation should be organized and administered.

User Profile – Project Owner

Projects receiving stimulus funding span a wide range from small retrofits and upgrades to significant new capital projects. Similarly, Project Owners and Project Managers undertaking these projects have a wide range of project oversight and/or management experience.

This Guide is aimed at the Project Owner – typically the person who signed the Contribution Agreement on behalf of their municipal council, not-for-profit agency, college or university as well as the governance body they head. The Project Owner holds the ultimate responsibility for project success.

In larger organizations, there is usually a supporting administrative staff. For those organizations, this Guide is aimed at the staff to which the Project Manager and Project Team report.

This Guide targets most of its advice to the Project Owner with an intermediate level of project oversight and/or management experience. The Guide is intended to provide the Project Owner with the right questions to ask of their Project Manager. The user of this Guide is not intended to be the Project Manager or the Project Manager's Team, although it is expected that this Guide could be a useful resource for the Project Team.

It is expected that Project Owners engage qualified and experienced personnel to deliver project success. Selection of the Project Manager is one of the most critical decisions the Project Owner will make to ensure success.

Finally, this Guide has been developed with the assumption that most projects are past the concept, planning and design stage and are construction ready.

Project Health Check

As Project Owner, understanding the "health" of your project and any risks to successfully completing it is essential to good governance, regardless of the stage of your project.

The results of the Health Check will identify areas that require further investigation with your Project Manager. The Guide directs you to specific chapters for more information on the key factors for success together with tools and techniques that can be used.

Key Benefits to the User

This Guide is intended to provide tools and techniques to help Project Owners successfully meet their obligations under the Contribution Agreements. It includes the following:

- A checklist to help Project Owners determine the "health" of their project
- A summary of project management best practices
- A practical explanation of obligations and reporting requirements under the Contribution Agreements

This Guide also:

- Applies to a cross section of project types and project delivery methods
- Addresses multiple ministry Contribution Agreements
- Enables Project Owners to understand project requirements at different stages in the life-cycle of their project
- Enables Project Owners to ask the "right" questions about project management, including:
  - Project governance and approvals
  - Project organization, roles and responsibilities
  - Scope planning and management
  - Budget development and management
  - Schedule planning and control
  - Risk management
  - Project reporting
- Gives Project Owners a "picture" of success for major project deliverables

This Guide to project management is prepared to assist funding recipients in meeting their obligations and timelines set out in contribution agreements between recipients and the Government of Ontario. The Guide is intended to be a concise general project management guide based on industry best practices. The Guide does not supersede any aspect of any Contribution Agreement and in the case of a conflict between the Guide and a Contribution Agreement, the Contribution Agreement should be followed. Further, the Guide is advisory in nature and should not be relied on as a substitute for legal or professional advice. The Guide addresses complex matters and may not apply or take into account particular or local facts and circumstances. The user is solely responsible for any use or application of the Guide.

GUIDE OVERVIEW

GUIDE OVERVIEW

Guide Framework

Infrastructure Ontario and the Ministry of Energy and Infrastructure have developed this Owner's Guide of project management best practices. This Guide shares tools, tips, and templates for dealing with schedule, cost and scope issues on any project.

Project Management tools, tips and techniques are covered for the full life-cycle of a project and the ongoing challenges of managing the schedule, budget and scope.

In Infrastructure Ontario's experience, one of the most important factors in delivering successful projects on time and on budget is to minimize scope changes once a project is underway. Many of the tools and techniques provided in this Guide will help to ensure that scope changes can be minimized through proper planning and effective change control processes.

Part A - Project Health Check: The Project Health Check Section takes Project Owners through some key questions and helps them identify which areas of the Guide to focus on.

Part B - Key Factors for Success: Nine key factors that can be critical to project success are identified and each factor is covered in Chapters 1 – 9.

Guide Conventions

Health Check Questions Addressed in This Chapter
Each Chapter references the specific Project Health Check questions that are addressed. For example:

Are your project roles and responsibilities clearly defined?

Chapter Format
Each Chapter is organized in a similar format as follows:

- Overview: Explanation and rationale for the key success factor
- Inputs: Deliverables necessary for the tools and techniques (e.g. the Contribution Agreement is an input into roles and responsibilities)
- Tools and Techniques: Practical best practice project management tools and techniques to achieve success
- Outcome: The desired outcome from implementing the project management best practice tools and techniques

Key Concepts
Look for this icon to identify key concepts addressed throughout the Guide.

Key concepts are highlighted throughout the Guide

Life-cycle of an Infrastructure/Facility Project

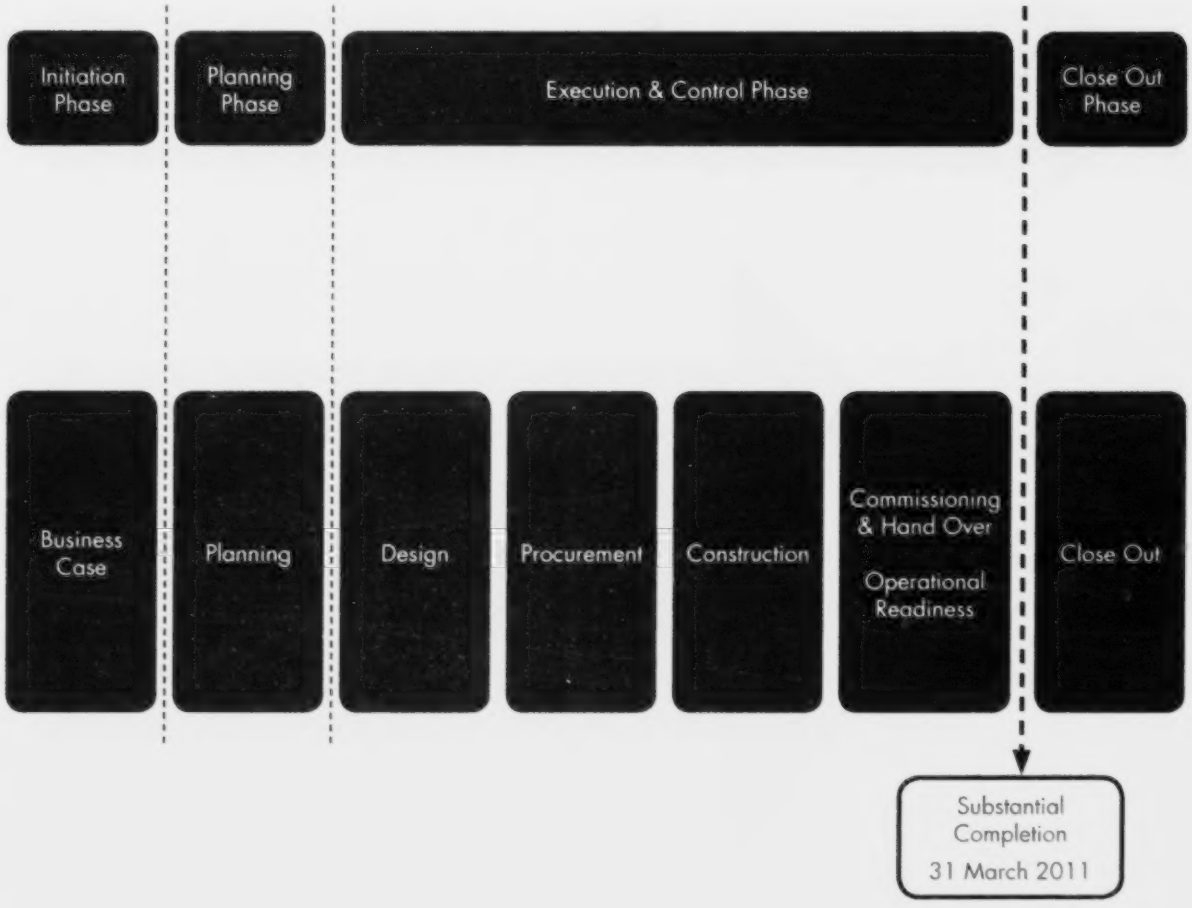
Project Owners should be informed throughout the project lifecycle so that they can make proactive and timely decisions that will enhance the likelihood of project success.

Overview

The life-cycle of a project is a collection of generally sequential project phases. While every project has a definite start and a definite end, the specific deliverables and activities that take place in between will vary widely with each project. The life-cycle provides the basic framework for managing the project, regardless of the specific work involved.

This Guide recognizes that Project Owners should be informed throughout the project life-cycle so that they can make proactive and timely decisions that will enhance the likelihood of project success. This Guide equips Project Owners with the right questions to ask at the right time (e.g. each stage in the life-cycle).

The chart below shows the project life-cycle for an infrastructure/facility project.



Source: Stantec Consulting and Project Control Group

Planning is the most critical phase of a project, because it is in planning that decisions are made about who will do what and how everyone will work together.

Projects vary in size and complexity. No matter how large or small, simple or complex, all projects follow a four step process:

1. Initiation Phase (e.g. starting the project)
2. Planning Phase (e.g. organizing and preparing)
3. Execution and Controlling Phase (e.g. doing the project work)
4. Closeout Phase (e.g. closing out the project)

Step 1: Initiation Phase (e.g. starting the project)
The initiation phase begins after the project is approved by the management of the organization. The purpose of the initiation phase is to provide direction to the Project Team about what should be accomplished and what constraints exist.

The initiation phase is the responsibility of the Project Owner, but in most organizations, the Project Manager actually writes the charter document and then has the Project Owner approve it.

The key output of the initiation phase is a project charter, which includes a basic agreement on project scope and budget.

Step 2: Planning Phase (e.g. organizing and preparing)
During the planning phase, the Project Team develops a plan for how and when the work will be accomplished. Planning is the most critical phase of a project, because it is in planning that decisions are made about who will do what and how everyone will work together.

Skipping the planning phase will often result in rework, which is both expensive and time consuming.

Key steps in this phase include the following:

- Select the team members
- Define the scope of the project
- Define risks associated with the project and develop ways to address them
- Determine the resources required to complete the project

The key output of the planning phase is a *project management plan* document that defines how the project will be executed. The Project Owner approves this document.

Step 3: Execution and Controlling Phase (e.g. doing the project work)
After the *project management plan* is approved, the work is then executed.

To make sure that the work is on track, the team regularly assesses project progress, and if required, recommends changes to the *project management plan*. The team also communicates project progress to stakeholders (discussed in Chapter 8). At the end of the execution phase, the final project deliverable is turned over for use.

Key steps in this phase include the following:

- Create the list of deliverables
- Assess project progress towards the final deliverable
- Resolve issues that affect progress
- Communicate progress using status reports
- Manage changes to the plan

The key output of the execution and controlling phase is completing the work and achieving the project performance targets.

Step 4: Closeout Phase (e.g. closing out the project)
The closeout phase involves completing the project paperwork e.g. contract, financials. A closeout report is produced by the Project Manager and issued to the Project Owner (*refer to Chapter 9 for more detail*).

The key output of the closeout phase is completing the project paperwork, closing out project contracts, and producing a closeout report.

Only one priority (cost, time, or scope) can dominate. Throughout the project life-cycle, decisions regarding the other two priorities need to be consistent with that one priority.

Project Success Defined

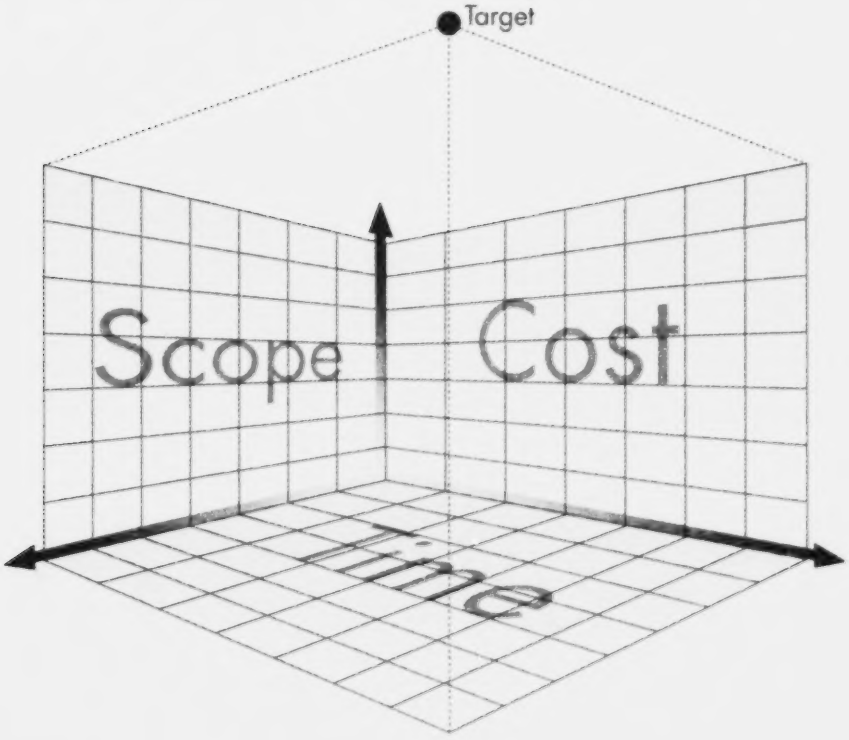
Overview

The definition of project success is specific to each individual project. This Chapter identifies traditional project performance targets.

Project Performance Targets

A common definition of success is how well the project meets its original performance targets.

- **Cost:** Did the project meet its budget target under the Contribution Agreement?
- **Time (Schedule):** Did the project meet its substantial completion target of March 31, 2011?
- **Scope (functionality and quality):** Did the solution meet the requirements of the project?



Source: Stantec Consulting and Project Control Group

Performance Priorities

Performance priorities should be clearly established at the start of a project. Often priorities vary for different stakeholders and sometimes may have to change during the project life-cycle because of a change in circumstances.

Only one priority (cost, time, or scope) can dominate. Throughout the project life-cycle, decisions regarding the other two priorities need to be consistent with that one priority. Examples of strategies used to meet performance priority targets include the following:

- Design and constructability alternatives (to meet cost targets)
- Schedule fast tracking or accelerating (to meet schedule target while possibly increasing costs)
- Schedule extensions (sacrificing a deadline to meet scope targets)

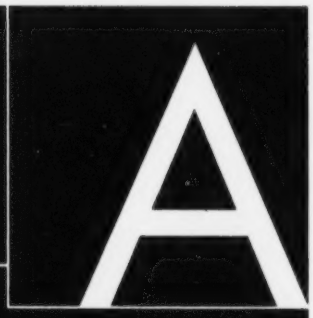
Key Factors for Success

Based on industry experience and evidence-based research, this Guide presents nine key factors for success:

1. Appropriate Project Sponsorship and Governance
2. Clear Project Vision and Objectives
3. Clear Definition of Roles and Responsibilities
4. Rigorous Scope and Change Management
5. Effective Cost and Schedule Management
6. Qualified and Experienced Project Resources
7. Proactive Risk Planning and Management
8. Active Stakeholder Engagement and Reporting
9. Operational Readiness

Part B of this Guide elaborates on each of these key factors for success.

PROJECT HEALTH CHECK



PROJECT HEALTH CHECK

Conducting your Project Health Check

Regardless of the stage of your project, as Project Owner, understanding the "health" of your project and any issues to successfully completing it is essential to good governance.

The Project Health Check poses a series of questions for you to conduct a self assessment on the potential issues your project may face.

Understanding the Results of your Health Check

Having conducted the Health Check, the response to each question that is either a "No" or "Unsure" suggests a potential issue for your project that requires further investigation with your Project Manager.

Why each of the questions is important to project success, or conversely is a potential risk to project success, is answered in the Guide. The Guide also directs you, as Project Owner, to specific Chapters containing more information on the key factors for success together with tools and techniques that can be used.

Project Health Check

Question	Yes	No	Unsure
1. Have you assessed your obligations under your Contribution Agreement?	☐	☐	☐
2. As Project Owner, is your project approvals process tailored to provide timely decisions (e.g. contract award, contract changes) to support the scheduled completion date?	☐	☐	☐
3. As Project Owner, do you have an alignment amongst stakeholders on the project priorities (scope, time, cost)?	☐	☐	☐
4. Is your project scope clearly defined and documented?	☐	☐	☐
5. Are your project roles and responsibilities clearly defined?	☐	☐	☐
6. Have you assigned responsibilities for each of the obligations under the Contribution Agreement?	☐	☐	☐
7. Is the final defined project scope consistent with the scope description in the Contribution Agreement?	☐	☐	☐
8. Do you have a process to control changes to the project?	☐	☐	☐
9. Are there any additional costs (e.g. ineligible costs) that are likely to be incurred that are not in your project budget?	☐	☐	☐
10. Does your project budget include additional costs (e.g. overtime or shift premiums) required to ensure completion by March 31, 2011?	☐	☐	☐
11. Are your project cost forecasts consistent with your project funding limits under the Contribution Agreement?	☐	☐	☐
12. Do you have an auditable cost control system that provides information sufficient to meet the reporting requirements under the Contribution Agreement?	☐	☐	☐
13. Are you on track to complete your project by March 31, 2011?	☐	☐	☐
14. Does your Project Manager have the appropriate qualifications and experience for your project?	☐	☐	☐
15. Can you identify the three key risks to the success of your project?	☐	☐	☐
16. Do you understand how your key risks are being managed?	☐	☐	☐
17. Do you have a list of all community consultations, approvals, permits, and licenses that are required for the project (e.g. environmental approvals, building permits, operating licenses)?	☐	☐	☐
18. Do you have a plan to operate your project when it is ready?	☐	☐	☐

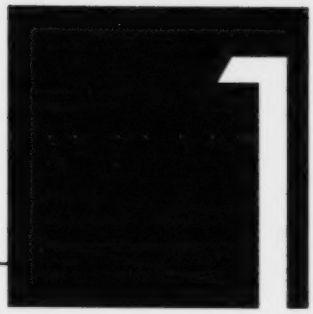
Understanding the Results of your Project Health Check

If you answered "No" or "Unsure", see below why getting to "Yes" is important and how this guide can help:	Reference
1. Full stimulus funding is contingent upon meeting your obligations.	*Part C*
2. Timely decisions enable the start of critical work and completion on schedule.	*Section 1.3*
3. Decisions need to be consistent with one project priority (scope, time, or cost).	*Section 2.1*
4. Scope uncertainty may cause additional costs and time delays.	*Section 2.2*
5. Defined responsibilities will ensure accountability and successful delivery.	*Section 3.1*
6. Assigning responsibilities will ensure that Contribution Agreement obligations are completed.	*Section 3.2*
7. Variances between the final defined scope and the Contribution Agreement's scope description may not be funded.	*Section 4.1*
8. Scope increases may cause additional costs and time delays.	*Section 4.1*
9. Your Contribution Agreement does not fund ineligible costs.	*Section 5.1*
10. Additional costs are your responsibility.	*Section 5.1*
11. Your Contribution Agreement may not fund all project costs.	*Section 5.2*
12. Reporting requirements are an obligation under your Contribution Agreement.	*Section 5.2*
13. Full funding is conditional upon substantial completion by March 31, 2011.	*Section 5.5*
14. Your Project Manager is a critical decision because the success of your project is dependent on his/her ability to manage the project.	*Section 6.1*
15. Understanding your key project risks increases your chance of project success.	*Section 7.1*
16. Identified risks require mitigation strategies to lessen or eliminate potential impacts.	*Section 7.2*
17. Active management of approvals and permits helps achieve completion on time.	*Section 8.5*
18. Project success requires both timely construction completion and operational readiness.	*Section 9.2*

KEY FACTORS FOR SUCCESS

B

APPROPRIATE PROJECT SPONSORSHIP AND GOVERNANCE



Health Check Questions Addressed in This Chapter

✓ As Project Owner, is your project approvals process tailored to provide timely decisions (e.g. contract award, contract changes) to support the scheduled completion date?

Chapter Contents

1.1 Governance Role of the Project Owner
1.2 Governance Structures and Authority Limits
1.3 Governance Decision Making

The success of a project will depend, in most cases, on the quality and timeliness of decisions made by the Project Owner.

1.1 Governance Role of the Project Owner

Overview

Project Governance is the planning, implementation, and ongoing management of roles, responsibilities, and decision-making processes involved in project planning and delivery.

The Project Owner is ultimately accountable for the success of the project, both under the laws by which the Project Owner's corporation was created and under the signed Contribution Agreement. The success of a project will depend, in most cases, on the quality and timeliness of decisions made by the Project Owner.

One of the most important decisions will be the choice of a Project Manager. Thereafter, typical decisions include the choice of Designer, Contractor, form of contract, scope issues, quality issues, cost issues, and change requests.

The role of governance also includes stakeholder communications and management, which broadly means understanding and managing the expectations of those inside and outside the Project Owner's organization.

It should be noted that the project governance approach should be reflective of the scale of the project.

Inputs

Inputs to establishing appropriate project governance include:

Governance Practices	Describes the general by-laws of the Project Owner's corporation and project specific supplements
Contribution Agreement	Identifies the Covenants, Warranties, and Representations that the Project Owner has made

Tools and Techniques

Governance Checklist for Boards and Councils
This following checklist identifies some of the fiduciary responsibilities of board and council members:

1. Are you aware of your responsibilities under the law applicable to your corporate body?
2. Are you familiar with the corporation's by-laws and corporate charter?
3. Are the by-laws of your organization, and its policies and procedures, up to date?
4. Are you satisfied that you are being given sufficient information, analysis, choices of action, and the implications of choosing various courses of action before being asked to make a decision on the matter?
5. Are briefing materials provided to you satisfactory for supporting your decision making?

6. Are clear and timely minutes kept for all meetings?
7. Are you being kept informed on all activities of the organization, its board, and its committees (where applicable)?
8. Do you attend meetings regularly and do you exercise your right to express your viewpoint?
9. Are you satisfied that there are procedures in place to address the potential for conflict of interest and the perception of conflict of interest?
10. Are you satisfied that your organization's staff are adequately qualified and experienced to be managing their assigned responsibilities and are there clear job descriptions for these responsibilities?
11. Are you satisfied with the adequacy of financial controls in place for disbursement or receipt of funds, and that insurance is in place to cover risk?
12. Are you satisfied that the organization's programs are regularly evaluated?

Relevant Contribution Agreement Provisions

The Contribution Agreements contain similar forms of covenants, warranties and representations. In particular, there are provisions which expressly address the quality of governance expected of the Project Owner. While reference should be made to the specific provisions of the Contribution Agreement signed by each Recipient, it is useful to establish a checklist of governance obligations. Although the Project Owner's Contribution Agreement may not contain exactly the same provisions as identified in the project manual, the same principals will often apply.

Project Owners are to consult their specific Contribution Agreements for applicable covenants, representations and warranties. In many Contribution Agreements typically the Recipient covenants, represents and warrants that it has, and shall maintain for the period during which this Agreement is in effect, by-laws or other legally necessary instruments to:

1. Establish the expected code of conduct and ethical responsibilities at all levels of the Recipient's organization
2. Establish procedures to ensure the ongoing effective functioning of the Recipient
3. Establish decision making mechanisms
4. Provide for the prudent and effective management of the Financial Assistance
5. Establish procedures to enable the successful completion of the project
6. Establish procedures to enable the timely identification of risks to the completion of the project and strategies to address the identified risks
7. Establish procedures to enable the preparation and delivery of all reports required under the Agreement

Outcome

By understanding project governance obligations, the Project Owner will realize that "the buck stops here". It is the Project Owner that is ultimately accountable for project decisions and therefore it is imperative that the Project Owner put in place a governance structure that enables timely and informed decision making.

It is fundamental to proper governance that the governance structure and the relevant authority levels and responsibilities be documented.

1.2 Governance Structures and Authority Limits

Overview

Proper governance requires a well documented and understood governance structure, which includes authority limits within the various levels of the structure.

Inputs

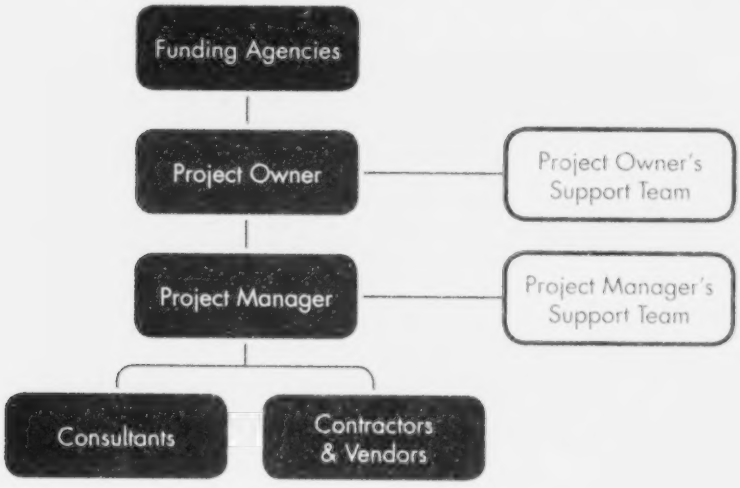
Inputs to a *project governance structure* include the following:

Organizational Governance Structure	Represents the governance structure design put in place to ensure compliance with the Project Owner's organization's by-laws and provisions of relevant law
Authority Limits	Describes the level of authority that is delegated by Board/Council members to management in order to implement the Board/Council direction

Tools and Techniques

Project Governance Structure

It is fundamental to proper governance that the governance structure and that the relevant authority levels and responsibilities be documented. An example of a general *project governance structure* designed to deliver project success is:



Source: Stantec Consulting and Project Control Group

Project Owner Governance Responsibilities

For a detailed description of *Project Owner governance responsibilities, refer to Chapter 3.*

Project Authority Limits

A Project Owner's Council/Board typically delegates authority to management and authorizes them to carry out the board's direction.

Typically this authority is distributed through the organization from the CEO down to the Project Manager with varying limits of authority to enter into contracts or approve financial matters depending upon the size of the organization. These limits need to be carefully considered in the context of managing the project itself.

The Project Manager may be required to manage a number of project issues including approving contracts, changes to contracts, approving payments, etc.

Outcome

The outcome from developing even a very simple *project governance structure* with delegated authority levels is not only meeting a requirement of the Contribution Agreement but also having alignment on "who is responsible for what".

Ensure that the proposed course of action complies with the provisions of the Contribution Agreement and is consistent with approved project priorities.

1.3 Governance Decision Making

Overview

Proper governance decision making is comprised of three elements:

1. Timeliness of decision making
2. Process by which the governance decision makers become sufficiently informed on the matter to be able to make a decision
3. Monitoring of decision implementation

An emergency situation or special circumstance may arise that requires an unplanned approval. The approvals process must make provisions for timely decisions to respond to these situations or circumstances.

Inputs

Inputs into governance decision making include the following:

Project Schedule	Identifies for governance decision makers when they are likely to be required to make a decision or provide an approval
Decision Making Process	Outlines standard questions that each member of the governance body can ask themselves prior to making a decision

Tools and Techniques

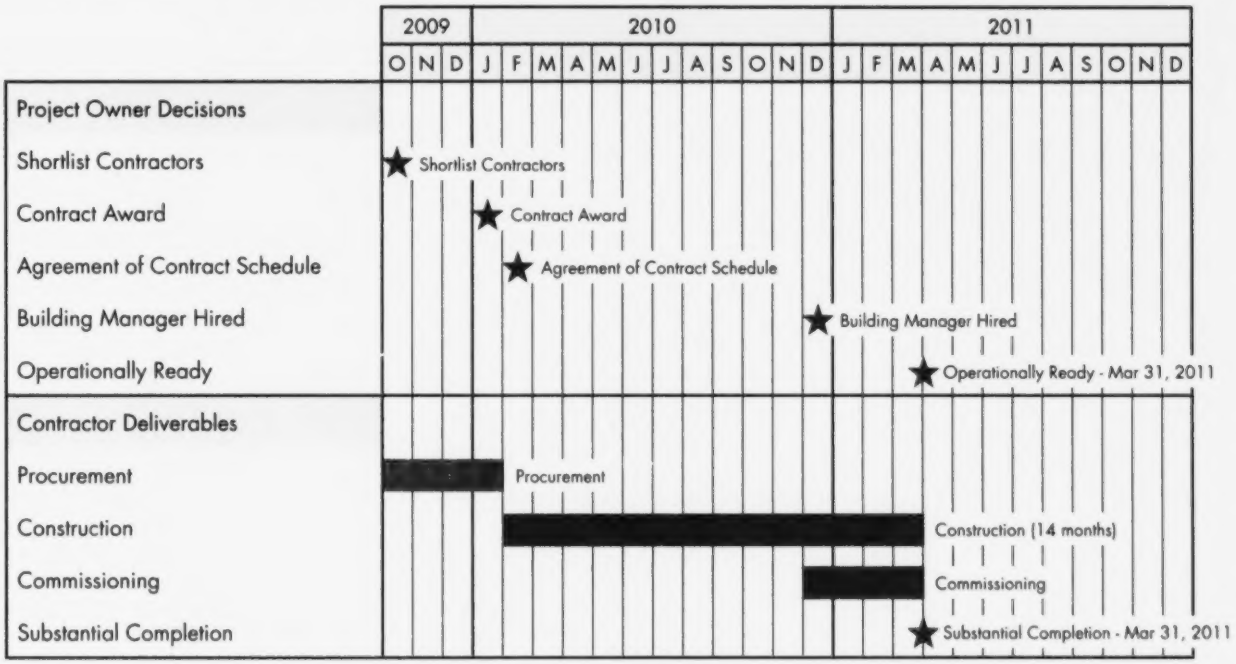
Decision Milestones
Knowing when major decisions need to be made is essential for the Project Owner. These decisions need to be identified as milestones in the *project schedule*.

Typical decision milestones include:

- Procurement decisions
- Budget approval decisions
- Schedule approval decisions
- Key staff recruitment decisions
- Operational readiness decisions

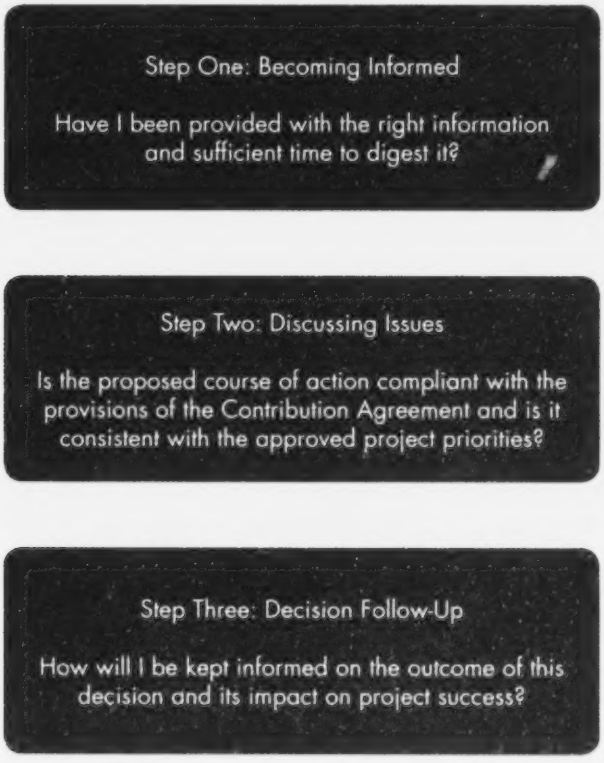
An example of *decision milestones* is shown below (*refer to Chapter 5.4 and 5.5* for development and control of the *project schedule*):

Example: New Community Hockey Rink



Informed Decision Making Process

The following is a graphic depiction of the steps in an informed *decision making process*:


Step One: Becoming Informed
Have I been provided with the right information and sufficient time to digest it?
Step Two: Discussing Issues
Is the proposed course of action compliant with the provisions of the Contribution Agreement and is it consistent with the approved project priorities?
Step Three: Decision Follow-Up
How will I be kept informed on the outcome of this decision and its impact on project success?

These are the basic questions that management must be able to answer before they can expect a governance decision to be made.

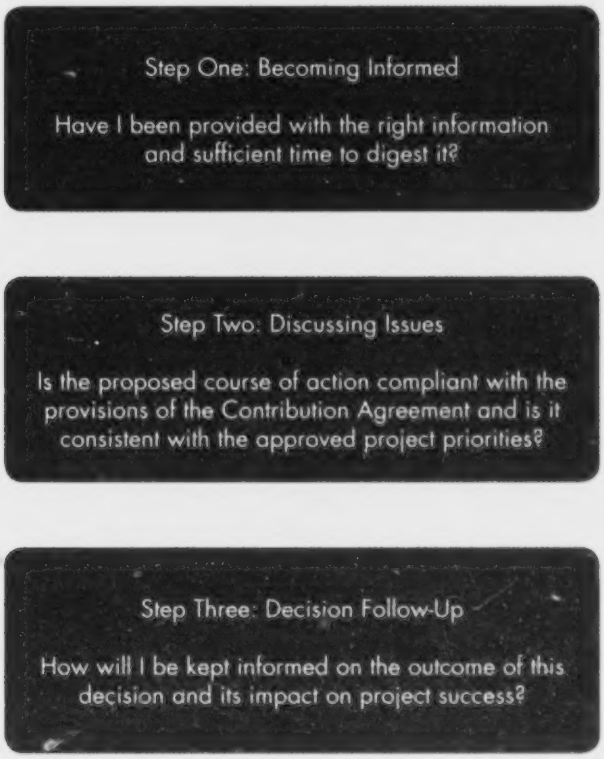
Ensure that the proposed course of action complies with the provisions of the Contribution Agreement and is consistent with approved project priorities.

Outcome

The outcome is a *governance structure* and an *informed decision making process* to ensure timely decisions to support achieving project objectives and the scheduled completion date.

Informed Decision Making Process

The following is a graphic depiction of the steps in an informed *decision making process*: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These are the basic questions that management must be able to answer before they can expect a governance decision to be made.

Ensure that the proposed course of action complies with the provisions of the Contribution Agreement and is consistent with approved project priorities.

Outcome

The outcome is a *governance structure* and an *informed decision making process* to ensure timely decisions to support achieving project objectives and the scheduled completion date.

CLEAR PROJECT VISION AND OBJECTIVES

Health Check Questions Addressed in This Chapter

- ✓ As Project Owner, do you have an alignment amongst stakeholders on the project priorities (scope, time, cost)?
- ✓ Is your project scope clearly defined and documented?

Chapter Contents

2.1 Project Charter
2.2 Scope Definition

The *project charter* sets the scope and priorities for the project.

2.1 Project Charter

Overview

The *project charter* is the document that formally authorizes a project. It provides the Project Manager with the authority to apply organizational resources to project activities.

A Project Manager is identified and assigned as early in the project as is feasible. The Project Manager should be assigned prior to the start of planning, and preferably while the *project charter* is being developed.

Inputs

Inputs into the project charter include:

Contribution Agreement	Includes requirements and obligations of the Contribution Agreement (*refer to Part C*)
Project Statement of Work	Describes in narrative format the products or services to be supplied by the project
External Factors	Includes factors beyond the project and organization for consideration such as the following: • Governmental or industry standards and approvals (e.g. agency regulations, product standards, quality and workmanship standards) • Marketplace conditions (e.g. availability of resources).
Organizational Factors	Includes organizational factors such as the following: • Infrastructure available (e.g. existing facilities, capital equipment) • Work authorization system • Internal project management requirements
Organizational Process and Procedures	Includes the Project Owner's organizational processes and procedures such as the following: • Policies, processes, and standards (e.g. health and safety policy, approvals process, and product standards) • Procurement guidelines (e.g. policies, proposal evaluation criteria, and performance measurement criteria) • Communication requirements • Financial controls procedures (e.g. expenditure/ disbursement reviews, accounting codes, and standard contract provisions)

Tools and Techniques

The *project charter* is an alignment tool that communicates the project objectives to the key stakeholders.

Project Charter

Development of a *project charter* is a simple way to organize all key project objectives, assumptions, and constraints in one document. The project charter formally recognizes the existence of a project. It identifies the Project Owner, Project Manager, and other stakeholders. It also states the project objective and overall scope of the project. While the Project Owner is officially the originator of the charter, the Project Manager is usually tasked with preparing it for the Project Owner's approval.

Contents of a typical charter include the following:

Typical Project Charter Contents

- Requirements that satisfy Project Owner and other stakeholder needs, wants, and expectations
- High level project description
- Project purpose
- Priorities: cost, time, and scope (functionality/quality)
- Assigned Project Manager and authority level
- Summary milestone schedule
- Stakeholder influences
- Functional organizations and their participation
- Assumptions (organizational, environmental, and external)
- Constraints (organizational, environmental, and external)
- Summary budget

Even if you have projects underway without a *project charter*, it's a good idea to work through the charter elements to determine if you're missing any information. Conducting this analysis may enable you to take corrective action to avoid project delivery issues.

Outcome

A *project charter* is the best way to launch a project in such a way that the Project Owner, Project Manager, and key stakeholders know the purpose of the project and its linkage to strategy, other projects, and operations. The *project charter* is an alignment tool that communicates the project objectives to the key stakeholders.

Scope definition is critical to project success because it increases certainty and reduces scope changes once a project is underway

2.2 Scope Definition

Overview

Scope definition is the process of developing a detailed description of the project in increasing level of detail. The scope definition is critical to project success because it increases certainty and reduces potential scope changes once a project is underway.

Stakeholder needs, wants, and expectations are analyzed and may be converted into requirements. The assumptions and constraints are analyzed for completeness, with additional assumptions and constraints added as necessary.

For additional details on scope management, *refer to Chapter 4.*

Inputs

Inputs into the scope definition process include:

Project Charter	Provides high level summary of project requirements (*refer to Section 2.1*)
Stakeholder Register	Identifies stakeholders that can provide information on detailed project and product requirements (*refer to Section 8.1*)
Requirements Documentation	Provides a listing of all the project requirements categorized by stakeholder and priority (e.g. functional program)
Organizational Practices and Templates	Defines policies, procedures, templates, and files from similar projects

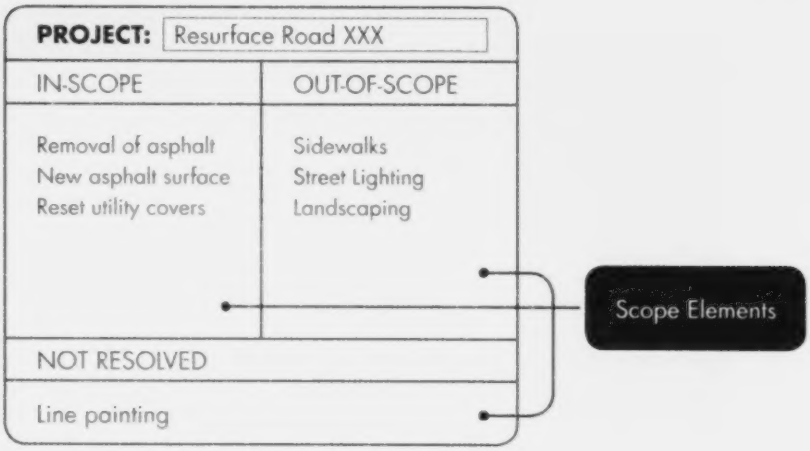
Tools and Techniques

Project Scope Statement
The *project scope statement* defines the boundary of the project and the responsibility of the Project Manager and Project Team.

To define scope, identifying the three conditions is essential: what is "In-scope" and what is "Out-of-scope" and what is uncertain or "Not Resolved".

Clearly defining what is "Out-of-scope" and "Not Resolved" helps to reduce uncertainty and future scope changes.

Below is an example of a *project scope statement*:



Source: Project Control Group

The techniques of developing the *project scope statement* include the following:

1. **Expert Judgement**
   Expert judgement is often used to analyze the information needed to develop the *project scope statement*. Such judgment and expertise is applied to the technical details. Sources include the following:
   - Project Owner and its organization
   - Consultants
   - Stakeholders

2. **Facilitated Workshops**
   Focused sessions bring key cross functional stakeholders together to define requirements and reconcile differences. Well facilitated sessions can build trust, foster relationships, and improve communication among the participants which can lead to increased stakeholder consensus. Another benefit of this technique is that issues can be discovered and resolved quickly (often at the workshop).

Outcome

The outcome is a common understanding of the project scope among project stakeholders. It may contain explicit scope exclusions that can assist in managing stakeholder expectations.

It enables the Project Team to perform more detailed planning, guides the Project Team's work during execution, and provides the baseline for evaluating whether requests for changes or additional work are contained within or outside the project's boundaries. It is important that the defined project scope receives key stakeholder approval.

CLEAR DEFINITION OF ROLES AND RESPONSIBILITIES

Health Check Questions Addressed in This Chapter

- ✓ Are your project roles and responsibilities clearly defined?
- ✓ Have you assigned responsibilities for each of the obligations under the Contribution Agreement?

Chapter Contents

3.1 Project Organization Structure
3.2 RACI Matrix

Defining the responsibilities of each role will help maximize the use of resources, increase efficiency, and ensure the quality of the completed project.

3.1 Project Organization Structure

Overview

The *project organization structure* sets out the hierarchy of the project organization or Project Team. It is a graphical depiction of project functions and their inter-relations. Another key aspect of the *project organization structure* is the definition of project roles and responsibilities.

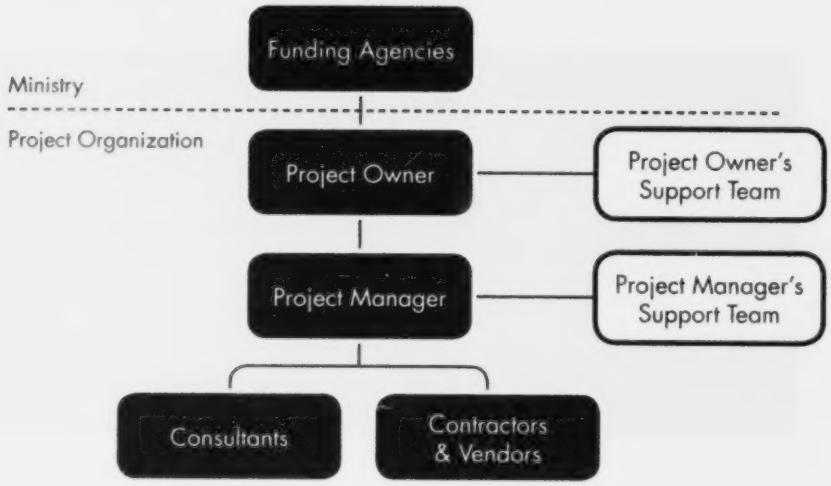
Inputs

Inputs used to develop the project responsibilities by role include the following:

Governance Framework	Provide governance organizational structure and delegated levels of authority (*refer to Section 1.2*)
Decision Making/ Governance Structure	Identifies deliverables that require approval and the responsible approval body (*refer to Section 1.3*)
Project Charter	Identifies functional organizations and their level of participation (*refer to Section 2.1*)
Company Organizational Chart	Provides a list of resources potentially available to the project
Organizational Policy and Procedures	Provides the policies and procedures of the Project Owner's organization.
Stakeholder Register	Provides a list of key stakeholders (*refer to Section 8.1*)
Contribution Agreement	Details obligations committed to in the Contribution Agreement (*refer to Part C*)

Tools and Techniques

Project Organization Structure
The figure below shows a simplified *project organization structure*:



Roles and Responsibilities
For each role in the organization chart above, the typical project responsibilities have been listed below:

Project Owner Responsibilities:
Following are the primary roles and responsibilities for the Project Owner:

1. Maintains overall governance responsibility
2. Maintains overall accountability to meet obligations of the Contribution Agreement between the funding agency and the Project Owner's Organization
3. Maintains accountability for delivery of the project on time, on budget, and within defined scope and quality objectives
4. Provides direction and key approvals to the Project Manager
5. Decides matters brought forward by the Project Manager requiring approval
6. Reviews regular reports from the Project Manager that detail:
   a) Project status
   b) Procurement status
   c) Construction progress
   d) Financial status
   e) Schedule
   f) Risk issues
7. Approves the following:
   a) Project Management Plan: project organization, governance, approval authorities, *procurement plan*, controls, communication plan, risk management plan, quality assurance plan
   b) Project policies
   c) Project procedures

d) Other key approvals that the Project Manager must seek approval for in the first instance include:
    i. Budget changes (excluding internal budget transfers)
    ii. Request for Qualifications (RFQ) issuance
    iii. Award of prequalified Contractors
    iv. Change Order (CO) approvals (over a predetermined amount)
    v. Contingency allocations (over predetermined amount)

8. Puts forward matters for approval as required by the project governance framework, including:
    a) Project Scope approval
    b) Material scope changes
    c) Major commitments in excess of a predetermined limit
    d) Recommendation to the respective authority for issuance of the Request for Proposal (RFP)
    e) Recommendation to the respective authority for award of the contract
    f) Expedition of regulatory approvals from a ministry or other authorities of jurisdiction if required
    g) Responding to policy changes from the government having a material impact on the project
    h) Matters outside the delegated authority of the Project Owner
9. Executes contracts for Consultants, Contractors, and Vendors

Project Owner's Support Team Responsibilities:
In most cases, the Project Owner's organization will have functional support roles. Support roles include the following:

- Finance
- Legal
- Procurement
- Communications

Project Manager Responsibilities:
Following are the primary roles and responsibilities for the Project Manager:

1. Manages the technical design team and Consultants
2. Manages the project in accordance with the provisions of the Contribution Agreement
3. Handles project controls, including cost control, scheduling, risk management, and document control during the implementation phase of the project
4. Prepares and issues the Request for Qualification (RFQ), then evaluates potential Consultants, Contractors, and Vendors and provides a recommendation to the Project Owner
5. Prepares and issues the Request for Proposal (RFP) or tenders, then evaluates potential Consultants, Contractors, and Vendors and provides a recommendation to the Project Owner
6. Manages various User Groups inputs
7. Handles day to day, on site management of design, procurement and construction activities
8. Organizes all Authority submittals
9. Obtains required Authority approvals
10. Coordinates procurement of furniture, fixtures and equipment, as well as IT and telecommunication systems

11. Reports regularly to Project Owner on project status (design, construction, approvals), cost, schedule, procurement, and risk
12. Obtains all required regulatory approvals and licenses
13. Administers all contracts
14. Approves Change Orders up to a predetermined authority limit

While the Project Manager is responsible and accountable for the above responsibilities, they will not necessarily perform all of the above responsibilities directly, but will ensure or cause all responsibilities to be performed by someone on the Project Team.

Project Manager's Support Team Responsibilities:
In most cases, the Project Manager has a team providing specialized support services either continuously or from time to time throughout the duration of the project. The membership of this team depends on the nature of the project, structure of the organization and the nature of the specialized skills and knowledge required. Typical support services from within the Project Manager's organization may include:

- Purchasing/Procurement Manager
- Contract Administrator
- Cost Controller
- Schedule Manager
- Project Coordinator(s)
- Construction Manager
- Commissioning/Transition Manager

Consultants Responsibilities:
The Consultants typically report to the Project Manager, providing services through the project life-cycle.

For most facility projects, the facility design team has a Prime Consultant (architect) that coordinates the Engineering Consultant designs. Specialty Consultants may be retained directly by the Project Manager, or through the Prime Consultant. For more information, *refer to Chapter 6*.

Examples of Consultants include the following:

- Architect
- Engineer
- Municipal Planning
- Pavement Consultant
- Landscape Architect
- Material Management/Logistics Consultant
- Cost Consultant
- Scheduling Consultant
- Project Management Consultant
- Environmental Consultant
- Code and Life Safety
- Commissioning Agent
- IT/Telecom Consultant
- Furniture and Equipment Consultant
- Hardware Consultant
- Security Consultant
- Specialty Consultants (e.g. LEED, AV, kitchen, etc.)

Contractors and Vendors Responsibilities:
The General Contractor, and other Owner Contractors and Vendors, report to the Project Manager, or to an appointed Project Coordinator.

Examples of Contractors and Vendors include:

- Construction Contractor
- Specialty Equipment Vendors
- Furniture Vendor
- IT /Telecom Vendor
- AV Vendor
- Food Services Vendor
- Physical Mover

Outcome

Project related responsibilities must be clearly defined for each role. Defining the responsibilities of each role will help maximize the use of resources, increase efficiency, and ensure the quality of the completed project.

3.2 RACI Matrix

Overview

Clear definition of roles and responsibilities is critical for project success. It reduces the number of assumptions, so that each deliverable has a clear owner. An effective tool is the *RACI matrix* (also known as the responsibility assignment matrix).

Inputs

Inputs used to develop the *RACI matrix* include the following:

Work Breakdown Structure (WBS)	Defines the project deliverables or work packages in detail that need to be assigned responsibility
Project Organizational Structure	Provides a list of resources available to the project (*refer to Section 3.1*)
Stakeholder Register	Provides a list of key stakeholders (*refer to Section 8.1*)
Decision Making/ Governance Structure	Identifies deliverables that require approval and the responsible approval body (*refer to Chapter 1*)

Tools and Techniques

RACI Matrix
A *RACI matrix* describes the participation by various roles in completing tasks or deliverables for a project. Using a *RACI matrix* will ensure clearly defined roles and responsibilities. It is especially useful in clarifying roles and responsibilities in cross functional/departmental projects and processes.

RACI is an acronym derived from the four key participation types most typically used:

R - Responsible
Those who do the work to achieve the task. There is typically one role designated as being Responsible, although others can be delegated to assist in the work required.

A - Accountable (also Approver or final Approving authority)
Those who are ultimately accountable for the correct and thorough completion of the deliverable or task, and the one to whom Responsible is accountable. In other words, an Accountable must sign off (Approve) on work that the Responsible party provides. There must be only one Accountable specified for each task or deliverable.

C - Consulted
Those whose opinions are sought through two way communication.

I - Informed
Those who are kept up to date on task progress or completion, usually through one way communication.

The figure below illustrates an example of a *RACI matrix*.

	Roles (derived from an Organizational Chart and Stakeholder Register)				
Deliverables by Work Breakdown Structure (WBS)	Project Owner	Project Manager	Consultant (e.g. Architect, Engineer)	User Groups (e.g. Operations, Maintenance)	Funding Agency
Cost Report	C	A	R	-	I
Schedule Report	C	A	R	-	I
Construction Documents	C	A	R	C	-
Construction Contract Award	A	R	C	-	I

Source: Project Control Group

It is generally recommended each deliverable receive only one Responsible and one Accountable assignment. Where more than one participation type is shown, this generally implies that participation has not yet been fully resolved, which can impede the value of this technique in clarifying the participation of each role on each task.

The techniques to develop the *RACI matrix* include following:

1. **Expert Judgement**
   Expert judgement based on experience and industry standards is used to develop the matrix.

2. **Facilitated Workshops**
   Key team members develop the matrix together at a working session.

The RACI matrix should be agreed upon by key stakeholders, especially those roles assigned Responsibility and Accountability.

Outcome

The *RACI matrix* clearly defines roles and responsibilities for each deliverable.

RIGOROUS SCOPE AND CHANGE MANAGEMENT

Health Check Questions Addressed in This Chapter

- ✓ Is the final defined project scope consistent with the *scope statement* in the Contribution Agreement?
- ✓ Do you have a process to control changes to the scope of the project?

Chapter Contents

4.1 Scope Management
4.2 Contract Change Management

Scope management controls "scope creep".

4.1 Scope Management

Overview

Scope management is a process to ensure that project scope, as approved by the Project Owner, is what is actually built. Scope management controls "scope creep".

Scope creep occurs when additional elements are added to the project scope, usually without the Project Owner's explicit or informed approval. Scope creep can occur during the design phase, the construction phase or during the handover and transition phase.

Scope management recognizes that even though a detailed description of the project is approved, there will always be questions of scope when the drawings are transformed into physical reality. Scope management categorizes questions of scope as being either "In-scope" or "Out-of-scope" and then assesses these scope questions for impact on budget, schedule, project functionality, and quality.

An Example

Consider a car purchase as an example of scope management. The car buyer wants a North American, two door, mid-sized, four-cylinder sedan with the usual features associated with that type of car (e.g. typical warranties, automatic transmission, AC, power brakes, power windows, radio, and CD player).

An In-scope issue could be the choice of tires. The car buyer knows that the car purchase will include tires but is usually not aware of the range of tire choices available. The final tire choice could have budget implications, if the tires selected cost more than the car buyer's original budget. There could also be schedule implications depending on availability and shipping duration of the tires.

An Out-of-scope issue could be the purchaser's consideration of a six-cylinder engine instead of a four-cylinder one. Unlike the question of selection of the type of car tires, the purchaser had already made a decision on the type of engine. To change that decision to now include a larger engine becomes a change in scope as the six-cylinder engine is deemed Out-of-scope. Like In-scope issues, Out-of-scope issues have both cost, schedule, function, and quality implications.

The key to scope management is to enable the Project Owner to understand and make informed decisions about scope issues as they arise.

Inputs

Inputs to the *scope management process* include the following:

Contribution Agreement	Requires that the completed project satisfy the project scope detailed in the agreement (*refer to Part C*)
Project Charter	Sets out the scope of responsibilities for which the Project Manager is responsible for delivering (*refer to Section 2.1*)
Owner Approved Project Scope Statement	Provides a detailed description of the project scope that the Project Owner has approved (*refer to Section 2.2*)
Project Schedule	Indicates when Owner approvals and reporting requirements occur (*refer to Section 5.4*)
Delegated Authority Levels	Defines project approval levels so that the Project Manager clearly understands which scope issues must be brought to the Project Owner for approval (*refer to Section 1.3*)

Tools and Techniques

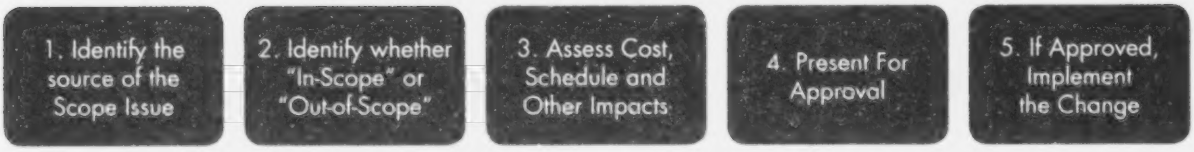
Principles of Scope Management
The following *principles of scope management* apply to most projects:

1. **Agreement**
   There must be agreement on:
   a) What constitutes a question of scope change, typically called a project change authorization (*refer to Section 4.2*)
   b) The delegated authority, if any, of the Project Manager to approve such project change authorizations
   c) How scope decisions, whether In-scope or Out-of-scope, will be documented throughout the project
   d) How scope management issues are to be reported to the Project Owner

2. **Assessment**
   All requests for approval of a proposed change authorization should include an assessment of the likely impact of the request on budget, schedule, and any other major factors affected

The Scope Management Process

The chart below shows the five steps of the *scope management process*:


1. Identify the source of the Scope Issue
2. Identify whether "In-Scope" or "Out-of-Scope"
3. Assess Cost, Schedule and Other Impacts
4. Present For Approval
5. If Approved, Implement the Change

Step One: Identify the Source of the Scope Issue

The source of many scope changes are the Owner's User or Operations groups. The sources could also be Regulatory Authorities or third parties having influence over the project.

It is important to identify the source of the change so that the requirement driving the need and accountability for the ultimate cost can both be identified. Design coordination or omissions usually do not drive scope changes.

Step Two: Identify Whether In-scope or Out-of-scope

Step two forces the Project Manager to refer to the various documents related to the project as well as the approved detailed scope statement to ensure that the scope requirement is correctly characterized. This is the step that will control "scope creep" by identifying Out-of-scope requests early and managing them accordingly (Out-of-scope items have no budget). Independent cost check estimates by Professional Quantity Surveyors is a good tool to use to identify scope creep during the design process.

Step Three: Assess Cost, Schedule and Other Possible Project Impacts

Step three requires the Project Manager to thoroughly study the requested change to understand its implications. If the request is to be considered for approval, the Project Manager should be able to present implementation and integration choices. Major scope changes may require an independent business case to be prepared in order to justify the return on investing the additional funds.

Step Four: Present for Approval
The Contribution Agreement requires an auditable record of the procedures used to deliver a successful project. Therefore, it is imperative that all scope change requests be in writing and that there be a documented decision making process showing how the Project Owner reached an informed decision on each scope request. Scope changes must be approved prior to implementation and as such need to be identified early to allow for proper integration into the project.

Independent cost check estimates by Professional Quantity Surveyors is a good tool to use to identify scope creep during the design process

Step Five: If Approved, Implement the Change
This step recognizes that, once the scope change receives appropriate approvals and the project budget is amended accordingly, the change forms part of the project scope and must be implemented.

Outcome

Proper scope management will help to prevent a project from running over budget or falling behind schedule because of scope creep. Scope management is a powerful project control process when understood and used properly by the Project Owner and the Project Manager.

Changes are not always the Project Owner's liability and associated risks may be transferable.

4.2 Contract Change Management

Overview

Contract change management is a process to incorporate changes into the scope of an existing contract, purchase order or other project commitment. Contract changes are typical in project work and occur as a result of a wide variety of issues and circumstances (e.g. site conditions, design coordination, changed requirement, etc).

Changes are typically generated from one of the following circumstances:

- Owner's scope change
- Change to or interpretation of regulatory requirements
- Site coordination issues
- Unforeseen conditions impacting cost and/or schedule
- Errors and omissions

Inputs

Inputs for the contract change management process are as follows:

All Project Related Contracts	Provides the base scope for validation of all requested contract changes and identifies predefined terms for evaluating changes to the work (e.g. agreed unit prices, labour rates, equipment rental rates)
Delegated Authority Levels	Provides approval levels so that the Project Manager clearly understands which contract change issues must be brought to the Project Owner for approval (*refer to Section 1.2*)
Owner Approved Project Scope Statement	Provides a detailed description of the baseline project scope in order to determine whether proposed changes are In-scope or Out-of-scope (*refer to Section 2.2*)
Project Schedule	Provides an evaluation tool to forecast the impacts of potential changes to the baseline project schedule (*refer to Section 5.4*)

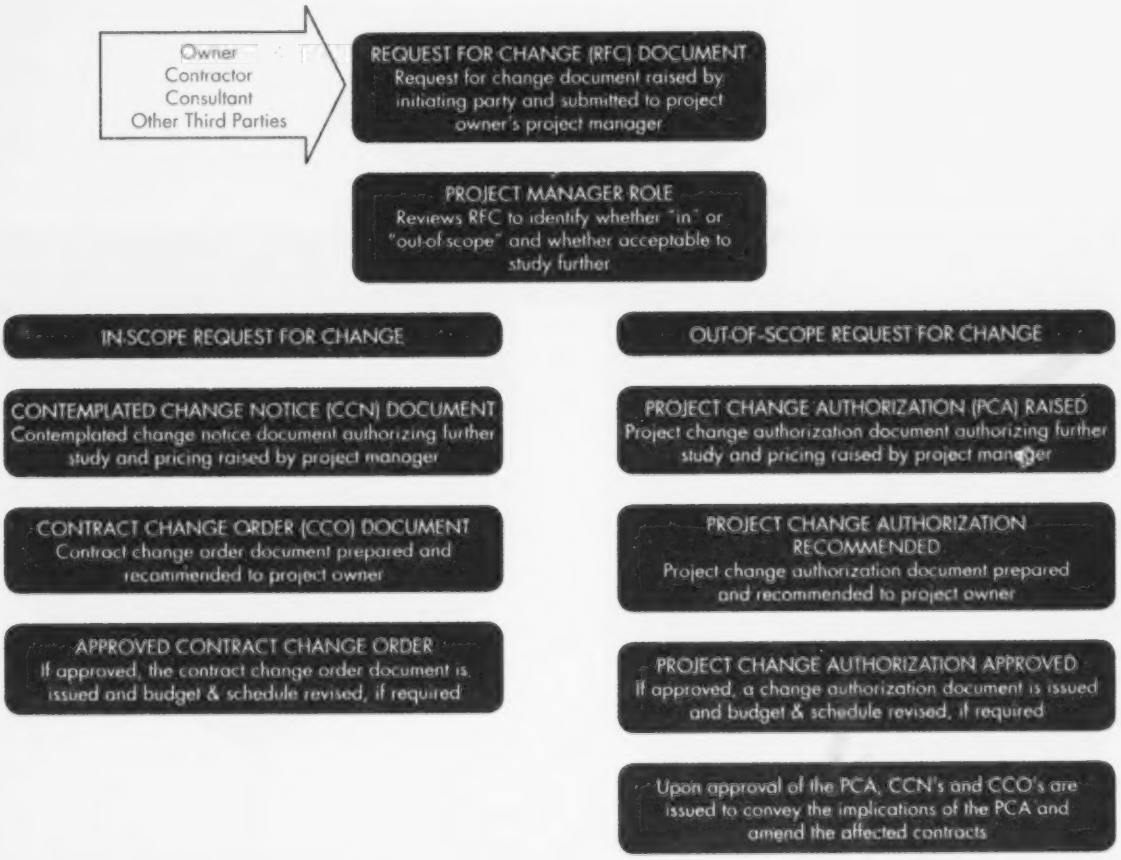
Tools and Techniques

Contract Change Management Process

Contracts attract change because no matter how well the scope of work is described in the contract documents, there will always be a difference between what was intended in words and drawings and the interpretation that occurs when the words and drawings are converted into reality. The contract change management process recognizes this "disconnect" and makes sure that:

1. Accountability for the requirement for each change is properly allocated (e.g. changes are not always the Project Owner's liability and associated risks may be transferable).
2. Each change is characterized as In-scope or Out-of-scope so that the Project Owner can prevent scope creep.
3. Change itself is properly studied and priced before being presented for approval (evaluated by subject matter experts where required).
4. All changes are logged, tracked, documented, and subject to the delegation of authority rules established for the project (proper cost forecasting should account for estimates of changes in progress or those pending resolution).
5. All changes are approved before they are implemented and integrated into the project.
6. The Project Manager needs to know the details of the project agreements and contract documents in order to perform proper evaluation of proposed changes.

The *contract change management process* is filled with acronyms. Some of the more common acronyms are described in the change management flow chart below:


Owner
Contractor
Consultant
Other Third Parties
REQUEST FOR CHANGE (RFC) DOCUMENT
Request for change document raised by initiating party and submitted to project owner's project manager
PROJECT MANAGER ROLE
Reviews RFC to identify whether "in" or "out-of-scope" and whether acceptable to study further
IN-SCOPE REQUEST FOR CHANGE
CONTEMPLATED CHANGE NOTICE (CCN) DOCUMENT
Contemplated change notice document authorizing further study and pricing raised by project manager
CONTRACT CHANGE ORDER (CCO) DOCUMENT
Contract change order document prepared and recommended to project owner
APPROVED CONTRACT CHANGE ORDER
If approved, the contract change order document is issued and budget & schedule revised, if required
OUT-OF-SCOPE REQUEST FOR CHANGE
PROJECT CHANGE AUTHORIZATION (PCA) RAISED
Project change authorization document authorizing further study and pricing raised by project manager
PROJECT CHANGE AUTHORIZATION RECOMMENDED
Project change authorization document prepared and recommended to project owner
PROJECT CHANGE AUTHORIZATION APPROVED
If approved, a change authorization document is issued and budget & schedule revised, if required
Upon approval of the PCA, CCN's and CCO's are issued to convey the implications of the PCA and amend the affected contracts

Source: Stantec Consulting and Project Control Group

1. Accountability for the requirement for each change is properly allocated (e.g. changes are not always the Project Owner's liability and associated risks may be transferable).
2. Each change is characterized as In-scope or Out-of-scope so that the Project Owner can prevent scope creep.
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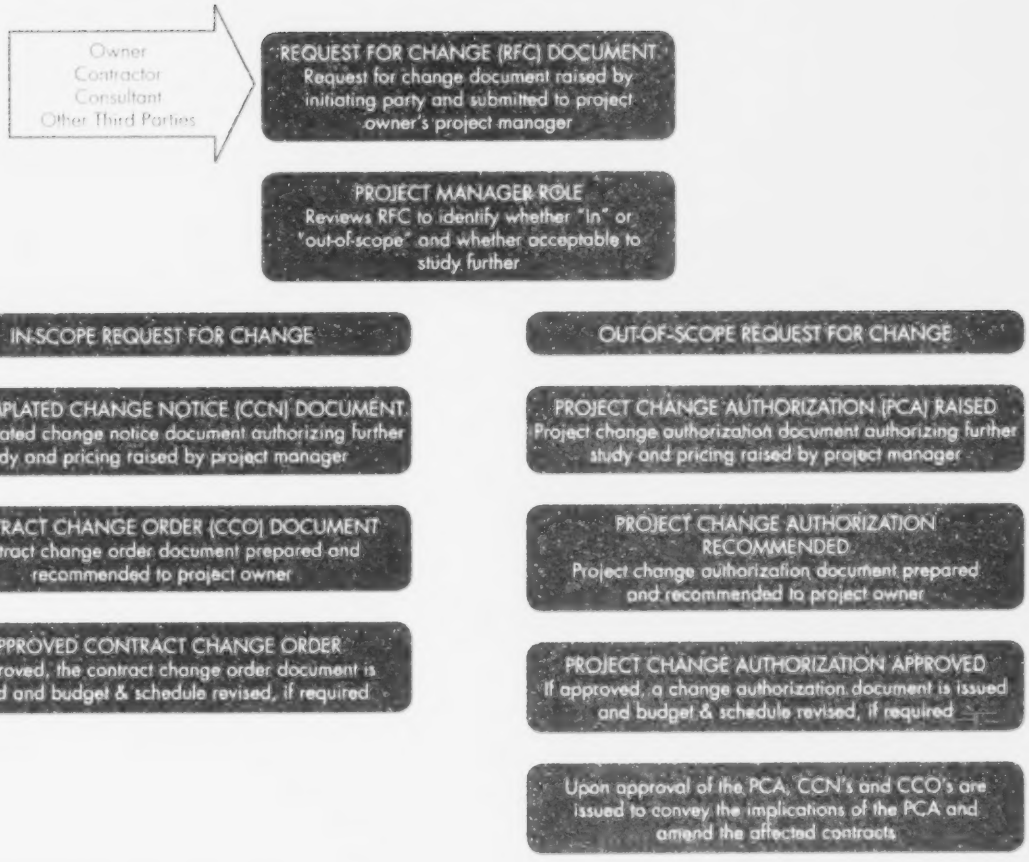
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Request for change document raised by initiating party and submitted to project owner's project manager
PROJECT MANAGER ROLE
Reviews RFC to identify whether "In" or "out-of-scope" and whether acceptable to study further
IN-SCOPE REQUEST FOR CHANGE
CONTEMPLATED CHANGE NOTICE (CCN) DOCUMENT
Contemplated change notice document authorizing further study and pricing raised by project manager
CONTRACT CHANGE ORDER (CCO) DOCUMENT
Contract change order document prepared and recommended to project owner
APPROVED CONTRACT CHANGE ORDER
If approved, the contract change order document is issued and budget & schedule revised, if required
OUT-OF-SCOPE REQUEST FOR CHANGE
PROJECT CHANGE AUTHORIZATION (PCA) RAISED
Project change authorization document authorizing further study and pricing raised by project manager
PROJECT CHANGE AUTHORIZATION RECOMMENDED
Project change authorization document prepared and recommended to project owner
PROJECT CHANGE AUTHORIZATION APPROVED
If approved, a change authorization document is issued and budget & schedule revised, if required
Upon approval of the PCA, CCN's and CCO's are issued to convey the implications of the PCA and amend the affected contracts

Source: Stantec Consulting and Project Control Group

Contract Change Documents

The contents of all *contract change documents* are fairly similar and can be summarized with the following questions:

Typical Contents of Contract Change Documents

- **Nature of the Change:** What is the nature of the change requested? Is it In-scope or Out-of-scope? Why should it be considered at all?
- **Parties to the Change:** Who has requested the change and to what contract does the change relate?
- **Stage of the Change Process:** The change document should clearly indicate whether it is a Request for Change (RFC), Contemplated Change Notice (CCN), or Contract Change Order (CCO)
- **Next Steps Requirements:** The document should clearly indicate what is required next, be it design work, cost estimating, or implementation
- **Recommending Party and Approval Party Signatures:** Each step of the process should capture the signature of the party(ies) recommending approval of the change and who, on behalf of the Project Owner, has approved the change
- **Contractor/Vendor Approval of Contract Change:** All approved changes are a change in contractual obligations and therefore the Contractor/Vendor must sign off of on the revision

Contract Change Log

A log of all contract changes must be developed with the status of each contract change (e.g. approved, pending, cancelled) maintained throughout the duration of the project. All pending or in-progress changes should have an estimate or expected cost included in the log, until the final cost is known. The contract change log will provide valuable cost forecasting information.

Project Change Authorization Form

The contents of the *project change authorization form* are similar to *contract change documents*, but need to include additional details supporting the reason for the change and greater identification and analysis of the associated impacts. This additional detail is required to provide the Project Owner with sufficient information to make informed decisions surrounding modifications to the original project scope. The following elements and questions summarize the contents of the typical *project change authorization form*:

Typical Contents of Project Change Authorization Form

- **Nature of the Scope Change:** What is the nature of the proposed scope change requested?
- **Parties to the Scope Change:** Who has requested the change and what contract(s) will the scope change affect?
- **Reason for the Scope Change:** The change document should provide a business rationale for the change. What would happen if it were not implemented?
- **Effect of the Scope Change:** The document should clearly indicate what is the impact of the proposed scope change to the following:
  - Contribution Agreement
  - Project risk
  - Budget
  - Schedule
  - Design
  - Quality
  - Operation of the completed project
- **Source of Funds:** Where are the funds coming from to implement the proposed scope change? Since this is a change to the original project scope, funds would not be allocated in the project budget or part of the ministry approved funding
- **Recommending Party and Approval Party Signatures:** Each step of the process should capture the signature of the party(ies) recommending approval of the change and who, on behalf of the Project Owner, has approved the change

Output

The output of contract change management is a well documented trail of informed decision making by the Project Owner that will prevent scope creep and project disputes and allows for accurate tracking and reporting of committed and pending project costs.

EFFECTIVE COST AND SCHEDULE MANAGEMENT

Health Check Questions Addressed in This Chapter

- ✓ Are there any additional costs (e.g. ineligible costs) that are likely to be incurred that are not in your project budget?
- ✓ Does your project budget include additional costs (e.g. overtime, shift premiums) required to ensure completion by March 31, 2011?
- ✓ Are your project cost forecasts consistent with your project funding limits under the Contribution Agreement?
- ✓ Do you have an auditable cost control system that provides information sufficient to meet the reporting requirements under the Contribution Agreement?
- ✓ Are you on track to complete your project by March 31, 2011?

Chapter Contents

Cost Management

5.1 Budget Development
5.2 Cost Control
5.3 Contingency Management

Schedule Management

5.4 Schedule Development
5.5 Schedule Control

Project Owners should also question whether the project budget reflects all of the costs likely to be incurred in project implementation including any additional costs (e.g. overtime costs and shift premiums) to achieve project completion.

Cost Management

5.1 Budget Development

Overview

Budget development is the process by which the initial budget (baseline budget) is established for the project and approved by the Project Owner. It is typically comprised of two steps:

1. **Budget Development**
   The process of identifying all the costs of individual components of work that comprise the project. The purpose of budget development is to establish a baseline budget for the project against which all further project expenditures can be compared.

2. **Cost Estimating**
   The process of subjecting budget numbers for discreet components of the project to further study in order to test budget estimates against market realities.

Project budgets need to identify and independently track costs that are both eligible for funding under the Contribution Agreement as well as ineligible.

Inputs

Inputs for budget development include the following:

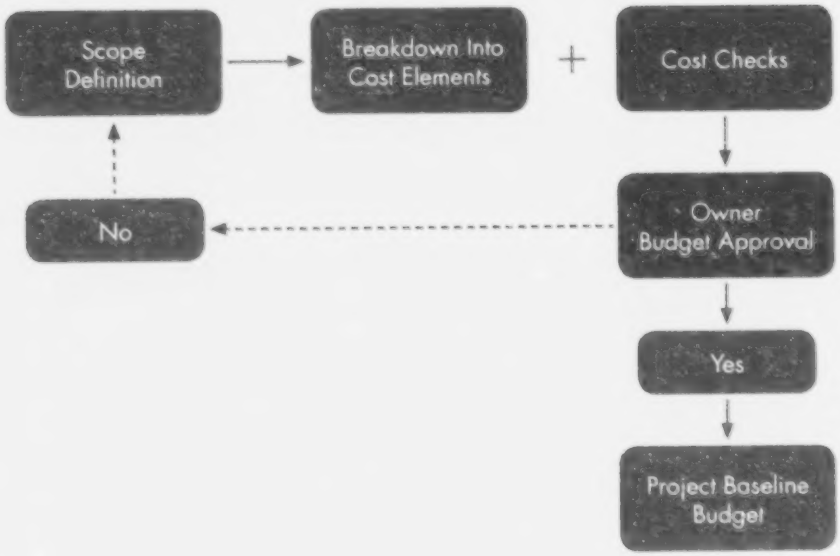
Contribution Agreement	Describes project costs as either being "eligible" or "ineligible"; nevertheless, Project Owners must budget for certain ineligible costs that may be necessary to complete the project, but will not be funded under the Contribution Agreement (*refer to Part C*)
Project Charter	Sets out the scope of responsibilities including non-construction costs such as consultants' fees, permits, and external stakeholder consultation costs (*refer to Section 2.1*)
Owner Approved Project Scope Statement	Provides a detailed description of the project scope that the Project Owner initially approved (*refer to Section 2.2*)
Project Schedule	Describes the activities and resources required to complete the project (*refer to Section 5.4*)

Tools and Techniques

Project Baseline Budget

The budget development process starts with a breakdown of the approved scope definition into specific cost elements. The cost elements can then be studied through cost checks to develop sufficient information to support further refinement of "known" and "unknown" costs. The chart bellow illustrates the budget development process.

The approval of a *project baseline budget* at the onset of a project gives the Project Owner a point of reference throughout the project life-cycle to make informed financial decisions.



Source: Stantec Consulting and Project Control Group

When reviewing a budget for approval, Project Owners must consider the stage of the budget evolution. The earliest versions of the budget should have the greatest amounts of contingency built into them to address the greater number of "unknowns" at the early stages of the project. Project Owners should also question whether the project budget reflects all of the costs likely to be incurred in project implementation, including any additional costs (e.g. overtime costs and shift premiums) to achieve project completion.

Outcome

The budget development process is an iterative one in which increasing certainty in costs enables contingency for "unknowns" to be reduced. Increased understanding of the budget also promotes a better understanding of what might be missing from the budget. The approval of a *project baseline budget* at the onset of a project gives the Project Owner a point of reference throughout the project life-cycle to make informed financial decisions.

Cost control practices enable the Project Owner and the Project Manager to make informed decisions about the sufficiency of the approved budget and to enable corrective action to address project issues in a timely manner.

5.2 Cost Control

Overview

Cost control is a forward looking process that focuses on projected costs to complete the project measured against the approved *project baseline budget*.

The *project baseline budget* should include both eligible and ineligible costs so that both can be effectively controlled and reported on.

Inputs

Inputs for cost control include the following:

Contribution Agreement	Stipulates that Project Owners be able to demonstrate effective procedures to deliver project success (*refer to Part C*)
Delegated Authority Levels	Provides approval level limits so the Project Manager clearly understands which scope issues must be brought to the Project Owner for approval (*refer to Section 1.2*)
Scope Change Management Procedures	Requires that all requested scope changes, whether In-scope or Out-of-scope, are documented and studied properly before being recommended or presented for approval (*refer to Chapter 4*)
Approved Project Baseline Budget	Enables the Project Owner to understand how and why costs have changed over the life-cycle of the project (*refer to Section 5.1*)
Project Schedule	Identifies planned durations of activities and associated resources allowing for planned versus actual cash flow analysis (*refer to Section 5.4*)

Tools and Techniques

Forecast Cost at Completion

Forecast cost at completion provides forward looking estimates of the likely cost of work necessary to complete the project, which enables earlier detection and mitigation of possible project cost issues. Techniques for calculating the *forecast cost at completion* include the following:

1. **Use of Costs to Complete vs. Actual Costs**
   The most significant difference between a Project Manager's approach to project finances and a traditional financial manager's approach is that the Project Manager is more concerned with "cost to complete" than with "costs incurred to date". By studying and testing estimates of cost to complete for all aspects of uncompleted work, the Project Manager can understand areas of cost vulnerability early enough to develop a plan to avoid a cost overrun.

2. **Commitments vs. Invoices**
   Another important tool in understanding *forecast cost at completion* is the use of "commitments" rather than "invoices". Invoices only capture cash paid out and are historical. Project Managers should use commitments, being signed contracts and change orders for delivery of specific portions of the project work, to identify the dollar value of work that is still uncommitted. By tracking commitments and regularly assessing the likely dollar value of the work remaining to be done on the project, the forecast cost at completion becomes a powerful predictor of project success.

Track All Changes to the Approved Project Baseline Budget

The key to cost management is a carefully documented record of all changes to the originally approved *project baseline budget* and the authority to make those changes. The authority for approving changes will be set out in the *project authority limits* that is given to the Project Manager by the Project Owner. This authority may include changes that involve:

- Positive and negative variances of spending against the baseline budget for each cost breakdown category
- Use of contingency allocation
- Budget changes and transfers
- Changes to commitments

Tracking and Reporting of Costs

The tracking and reporting of costs must begin at project outset, because committed costs begin to accrue immediately. Effective tracking of costs requires some fundamental management principles. Examples include the following:

- No expenditures should be permitted without an approved commitment
- Transactions are to be executed in accordance with the established approvals process
- Cost controls are to be implemented and maintained through the use of a secure project cost management and reporting system

Cost tracking involves regular (usually monthly) assessment of the sufficiency of the budget, based on a line by line analysis of approved commitments, planned commitments, forecast changes to those commitments, and other potential commitments.

This is typically achieved by reviewing a document from the cost management system that captures this information at a regular meeting involving the Project Manager and key Project Team Members.

Monthly reporting of costs together with a supporting analysis is required to keep the Project Owner informed on the adequacy of the approved budget and remaining funds to complete the project.

Outcome

Effective cost control enables the Project Owner and the Project Manager to make informed decisions about the sufficiency of the approved budget and to enable corrective action to address project issues in a timely manner. These practices also ensure a highly effective means to measure project progress and to create a cost record and audit trail.

5.3 Contingency Management

There will always be uncertainties (e.g. unknown soil conditions) inherent in the implementation of any project and the role of contingency is to address that uncertainty.

Overview

Contingency Management is the use, throughout project implementation, of a specific category of project funds, called contingency, to address uncertainties in the project budget. Contingency should address the following:

- The specific items in the budget for which contingency is set aside
- The event that triggers the uncertainty
- The amount of contingency to be assigned to create certainty

Inputs

Inputs for contingency management include the following:

Approved Project Baseline Budget	Enables the Project Owner to understand how and why costs have changed over the life-cycle of the project (*refer to Section 5.1*)
Project Schedule	Shows when Project Owner approvals and reporting requirements occur (*refer to Section 5.4*)
Delegated Authority Levels	Provides approval levels so that the Project Manager clearly understands which scope issues must be brought to the Project Owner for approval (*refer to Section 1.2*)
Forecast Cost at Completion	Provides forward looking estimates of the likely cost of work necessary to complete the project, which enables earlier detection and mitigation of possible project cost issues (*refer to Section 5.2*)

Tools and Techniques

Contingency Budget Allocations

Consideration for *contingency budget allocations* include the following:

1. **Contingency Should Not Just be a Single Line Item in the Budget**
   Contingency should be identified and allocated throughout line items or cost groupings in the budget. The role of contingency is to address uncertainty about the adequacy of the budgeted amount. Therefore, it should be possible to review specific line items, determine the level of uncertainty associated with each, and determine a contingency amount to adequately address the associated risk.

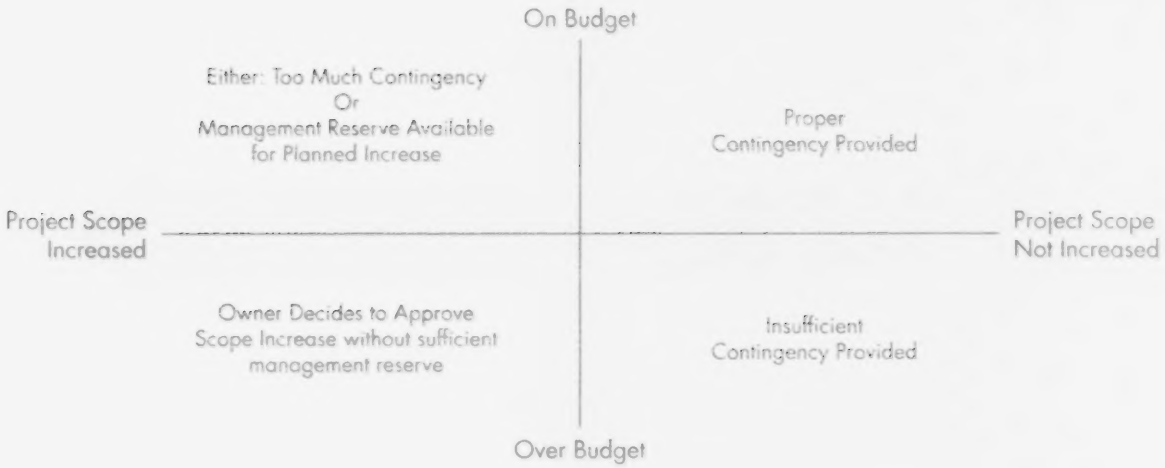
Expenditure of contingency needs to be managed to analyze the rate of expenditure against the percentage of project completion to identify budget and schedule risks.

2. **Contingency Amounts Will Vary with Project Design Evolution**
The amount of contingency that is appropriate to allocate to budget line items will vary depending on the stage of development of the project. For example, at the concept phase, there is little detail, other than a broad conceptual statement. Therefore, any assessment of the projected cost of the project will be highly uncertain and warrants greater contingency. When there is a highly developed description of the project (e.g. detailed construction drawings), the level of contingency can be reduced because the number of unknowns and level of uncertainty has been reduced.

3. **Contingency Addresses Uncertainty – Which is Always Present**
There will always be uncertainties (e.g. unknown soil conditions) inherent in the implementation of any project and the role of contingency is to address that uncertainty. If the uncertainty is realized (e.g. poor soil conditions encountered), contingency is available to address it within the approved project budget. Contingency is meant to be spent throughout the project life-cycle. The rate of spending of contingency can be used as a powerful indicator of budget sufficiency.

4. **Contingency is Often Confused with Management Reserve**
Management Reserve is an amount set aside, at the request of senior management, to address possible scope changes that may be requested by senior management. Management Reserve may or may not be spent, whereas, with proper contingency amount identification, all contingency funding may be spent by the end of the project.

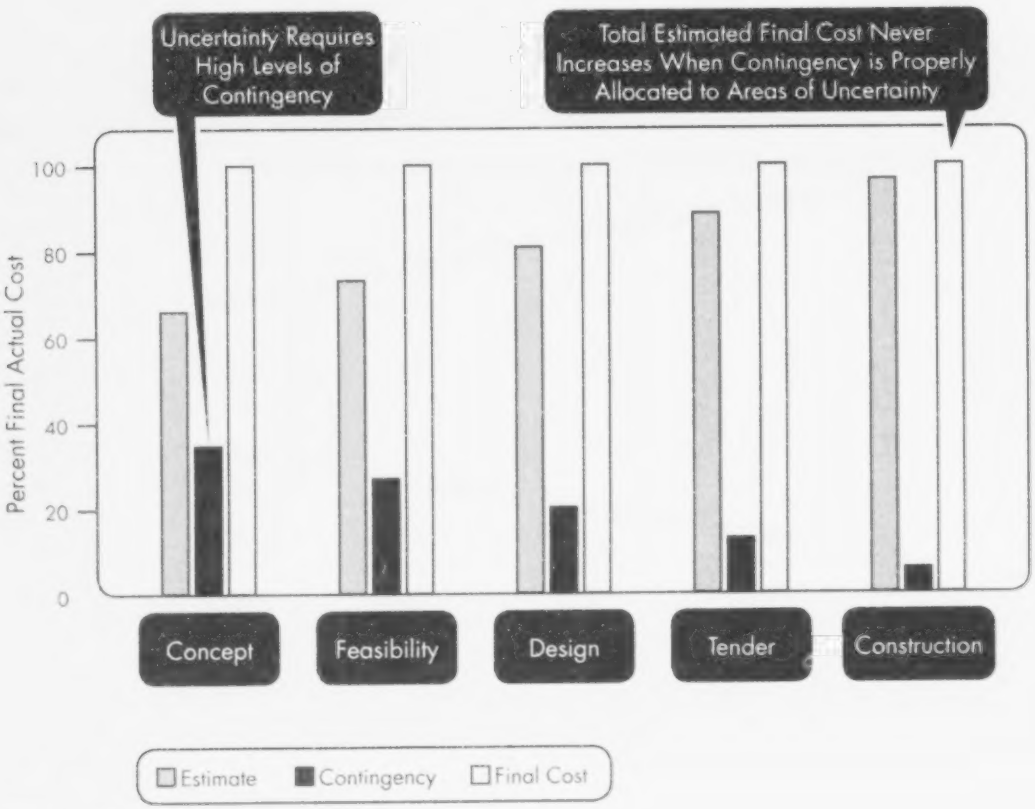
5. **Proper Contingency Allocation will be Spent Throughout Project Implementation**
The matrix below shows the impact of properly identifying and providing for contingency.



Source: Stantec Consulting and Project Control Group

Proper identification and use of contingency ("Proper Contingency Provided") enables the project to be delivered on budget (see upper right quadrant). Where there is no increase in scope and a budget overrun, there is "Insufficient Contingency Provided" (see lower right quadrant).

6. **Use of Contingency**
   Expenditure of contingency needs to be managed to analyze the rate of expenditure against the percentage of project completion to identify budget and schedule risks. On large projects, Project Owners may require a contingency drawdown policy that defines the rate of contingency expenditure against the percentage of project completion. The following graph depicts a sample target burn rate of contingency in comparison to the limits established for the project.



Source: Stantec Consulting and Project Control Group

Outcome

The result of proper identification of contingency and proper contingency management throughout a project is the ability to respond to cost uncertainties within the approved budget.

Every schedule is based upon strategies proposed for each of the major project deliverables. Therefore, it is important that the Project Owner understands each strategy being proposed to ensure that they are consistent with the priorities for the project.

Schedule Management

5.4 Schedule Development

Overview

Schedule development involves establishing a *project schedule* (commonly called a project timeline or work plan) that links together the major work streams of all major stakeholders, both internal and external, into a single integrated schedule showing how the project will be implemented.

Inputs

Inputs for schedule development include the following:

Project Governance	Identifies the governance approval body and each approval process and duration (*refer to Chapter 1*)
Owner Approved Project Scope Statement	Defines scope elements; scope may be broken down into detail using a work breakdown structure, which may be considered the schedule's table of contents (*refer to Section 2.2*)
Regulatory Approvals Matrix	Identifies who the external approval body is and each approval process and duration (*refer to Section 8.5*)
Contribution Agreement	Sets out various activities that must be scheduled and managed throughout the project life-cycle (*refer to Part C*)

Tools and Techniques

Project Schedule

A *project schedule* needs to include four basic elements:

1. What needs to be done (tasks from *project scope statement*)
2. Who will do it (Project Owner, Contractor, approval authority)
3. How long it will take (duration)
4. Interdependencies between the work (linkages)

Every schedule is based upon strategies proposed for each of the major project deliverables. Therefore, it is important that the Project Owner understands each strategy being proposed to ensure that they are consistent with the priorities for the project.

Comprehensive project schedules are typically developed through planning workshops involving the Project Manager and the key Project Team members responsible for executing the work. The availability and quantity of resources need to be assessed when developing the schedule since they will affect the duration of activities

Comprehensive project schedules are typically developed through planning workshops involving the Project Manager and the key Project Team members responsible for executing the work.

A *project schedule* can be developed at differing levels of detail:

- Summary or Executive schedule (high-level "big-picture" view)
- Detailed schedule (detailed tasks for each deliverable)

Schedules need to identify matters such as the following that directly affect project success:

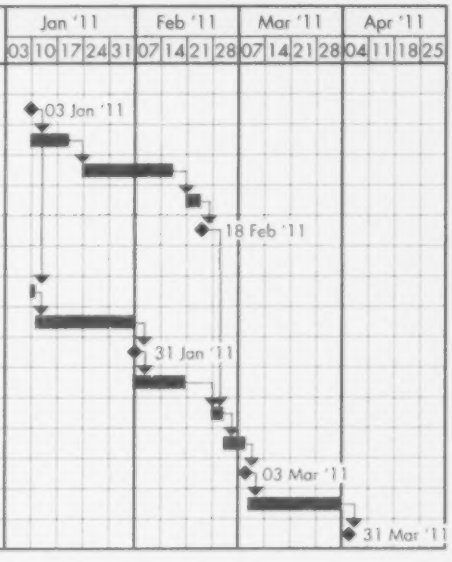
- Regulatory approvals, licences and permits
- Long lead or unique products to be procured
- Construction constraints (e.g. winter work, local by-laws)
- Collective agreement expiration dates

Schedules need to contain major milestones when specific deliverables are due so that performance can be measured. Major coordination points and handover dates between the construction schedule and the Owner's activities need to be identified. Changes to the construction schedule will clearly show the impact on the timing of the Owner's project work or Owner's operations, allowing the Project Manager to respond in a timely and appropriate manner.

Like a project budget, a *project schedule* should include time contingency tasks that address schedule uncertainties. Buffer tasks act as a time cushion for the subsequent activities after a stream of work or for unknown activities. Time contingency tasks need to be specifically identified and scheduled within the project life-cycle rather than just an amount of time at the end.

An example of a *project schedule* with time buffers is shown below:

ID	Task Name	Duration	Start	Finish
1	FINAL OCCUPANCY	12.8 wks	03 Jan '11	31 Mar '11
2	Commence City Inspections	0 wks	03 Jan '11	03 Jan '11
3	City Review and Identify Issues	2 wks	03 Jan '11	14 Jan '11
4	Contractor Rectify Issues	4 wks	17 Jan '11	11 Feb '11
5	City Re-inspection	1 wk	14 Feb '11	18 Feb '11
6	Occupancy Permit Issued	0 wks	18 Feb '11	18 Feb '11
7				
8	Confirm Move Date to Furniture Installer	1 day	03 Jan '11	03 Jan '11
9	Furniture Procurement	4 wks	04 Jan '11	31 Jan '11
10	Furniture Delivery	0 wks	31 Jan '11	31 Jan '11
11	**"Feeder Chain Buffer"**	2 wks	01 Feb '11	14 Feb '11
12	Install Furniture and Equipment	0.8 wks	21 Feb '11	24 Feb '11
13	Move Period	1 wk	25 Feb '11	03 Mar '11
14	Operationally live	0 wks	03 Mar '11	03 Mar '11
15	**"Project Buffer"**	4 wks	04 Mar '11	31 Mar '11
16	March 31, 2011 Operational (Worst Case)	0 wks	31 Mar '11	31 Mar '11



Source: Stantec Consulting and Project Control Group

Project Baseline Schedule

Once a the *project schedule* has been approved by the Project Owner, it becomes the *project baseline schedule*.

The *project baseline schedule* becomes the benchmark for comparison to the current schedule status (*refer to Section 5.5* for schedule control).

Outcome

The primary outcome of schedule development is the establishment of a team-agreed *project schedule* that is submitted to the Project Owner for approval and then becomes the *project baseline schedule* for measuring progress and performance.

5.5 Schedule Control

Schedule Control results in the ability to determine if the project will be completed on schedule and to identify any mitigation strategies necessary to maintain the schedule.

Overview

Schedule control is the process of assessing the current project performance and the ability to complete the project when planned.

Inputs

Inputs into schedule control include the following:

Contribution Agreement	Sets out various activities that must be scheduled and managed throughout the project life-cycle (*refer to Part C*)
Project Baseline Schedule	Enables the Project Owner to compare the current status and understand how and why activities and durations have changed over the life-cycle of the project (*refer to Section 5.4*)
Project Change Authorizations and Contract Changes	Provides new activities to be added to the *project schedule* reflecting revised deliverables associated with changes in project scope (e.g. the need to complete a new investigative study to suit a regulatory approval) (*refer to Section 4.2*)

Tools and Techniques

Schedule Variance Analysis

Schedule control is dependent upon identifying variances in activity durations, interdependencies between activities, and impacts on the project completion date. Variances between actual productivity and assumed productivity also need to be analysed. Comparison of actual and forecast performance against the project baseline schedule is an effective method to assess this.

Another cross check to schedule performance is a comparison to the forecast expenditures to date.

Regular Review Process

The Project Management Team needs to establish a formal process for regularly (typically monthly) gathering activity performance and assessing its impact against the baseline project schedule. This process must involve input and participation from those directly responsible for executing the work itself, especially the construction Contractor. Standing meetings where performance review against the *project baseline schedule* is a prominent agenda item is a commonly used and effective practice.

Forecast Time to Complete

Forecast time to complete provides a forecast of the likely time to complete the project, and enables mitigation strategies to be identified in order to complete the project on schedule .

Updating the *project schedule* with performance information may result in forecast dates projecting to be later than the target dates in the project baseline schedule. The Project Management Team needs to use this information and the expert judgement from key team members to identify ways to mitigate schedule slippage through preventative or corrective action to maintain the overall schedule goals. Options to regain time include the following:

1. **Revised Approach**
   Using a revised approach involves completing work in a different way that takes less time.

2. **Accelerating**
   Accelerating the schedule involves completing some tasks in shorter time by applying overtime, adding resources, or paying premiums for faster delivery.

3. **Fast Tracking**
   Fast tracking the schedule involves overlapping streams of work that would normally be completed sequentially.

The impacts of these options can be tested in the latest *project schedule* (project management software makes this easier to do) so that an appropriate approach can be agreed to by affected parties and communicated to the Project Team.

Outcome

Schedule control results in the ability to determine if the project will be completed on schedule and to identify any mitigation strategies necessary to maintain the *project schedule* target dates.

QUALIFIED AND EXPERIENCED PROJECT RESOURCES

Health Check Questions Addressed in This Chapter

✓ Does your Project Manager have the appropriate qualifications and experience for your project?

Chapter Contents

6.1 Project Management Team
6.2 Project Contracting Strategy
6.3 Procurement Plan
6.4 Contract Administration

Selecting the appropriate Project Manager is one of the most important decisions because overall success is dependent upon their ability to manage the project.

6.1 Project Management Team

Overview

Selecting the appropriate Project Manager is one of the most important decisions because overall success is dependent upon their ability to manage the project.

Depending upon the nature and complexities of the project, the Project Manager may wear many hats and manage a variety of responsibilities for the Project Team. For a large, complicated project, there will likely be an integrated Project Management Team, with responsibilities assigned for specific functional areas.

Inputs

Inputs necessary to identifying qualified and experienced project resources include:

Contribution Agreement	Contains specific obligations that the Project Owner may assign to the Project Manager/Project Team to manage (*refer to Part C*)
Owner Approved Project Scope Statement	Indicates the skills and experience required on the Project Team based upon construction and non-construction scope (*refer to Section 2.2*)
Contracting Strategy Concept	Determines the anticipated type of experience and qualifications of the Project Manager and Project Team

Tools and Techniques

Identification of Required Resources

The Project Owner should identify the key project activities to deliver the project (both construction and non-construction activities) and satisfy the obligations under the Contribution Agreement. The Project Owner needs to determine which activities they will remain responsible for and which activities will be delegated to the Project Manager.

With that established, the Project Owner can determine the technical and management qualifications as well as the requisite experience of the Project Manager. Qualifications are professional credentials and specific technical expertise suited to the role. Experience is about successfully delivering projects of similar size and complexity together with actual years of experience.

The Project Manager would follow the same process to identify qualifications and experience required for the Project Management Team as well as other resources (e.g. Consultants, Contractors, and Vendors).

Outcome

The outcome of establishing the Project Management Team is the selection of a qualified and experienced Project Manager as well as appropriate personnel to manage the identified list of required Consultants, Contractors, and Vendors.

The outcome of assessing the *project contracting strategy* results in the selection of a contracting strategy that best fits the Project Owner's ability to manage and deliver the project within their tolerance for risk.

6.2 Project Contracting Strategy

Overview

Choosing the appropriate *project contracting strategy* involves an analysis of the availability and capability of required resources as well as the risks associated with delivering the desired project outcome. The preferred contracting strategy should help to manage the project delivery risks and align with the identified resource needs and availability.

Inputs

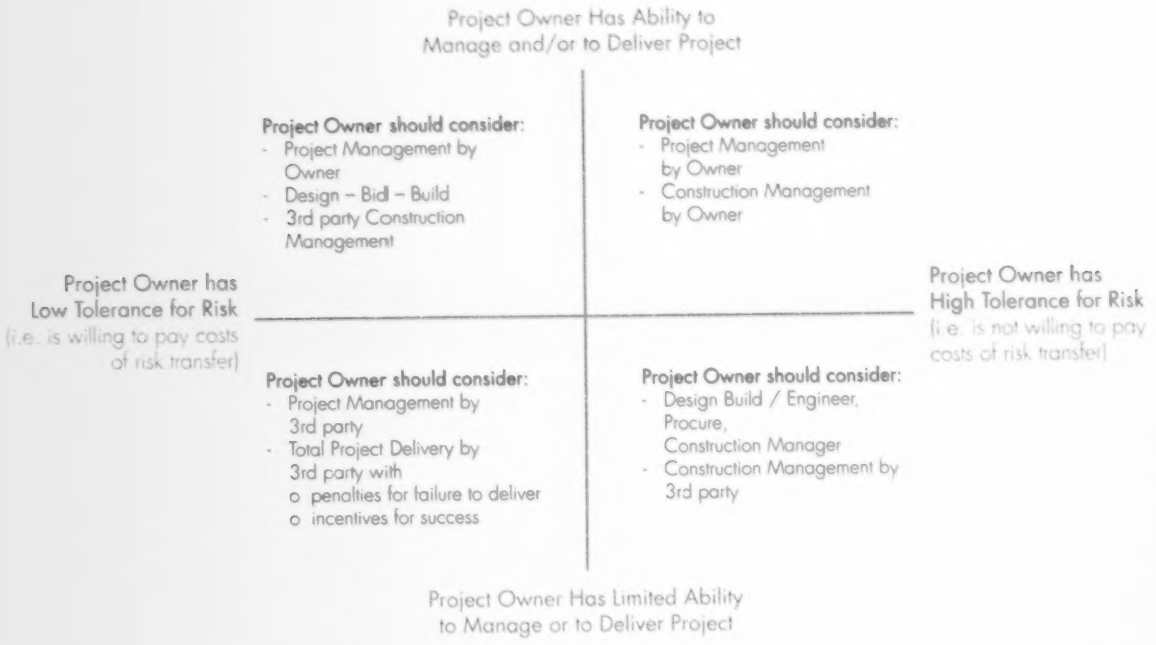
Inputs to developing the *project contracting strategy* include:

Contribution Agreement	Identifies the key project priorities and Project Owner's obligations that need to be addressed by the project contracting strategy (*refer to Part C*)
Owner Approved Project Scope Statement	Identifies the construction and non-construction elements of the project to be delivered (*refer to Section 2.2*)
Identification of Required Resources	Identifies necessary qualifications and experience to deliver the project (*refer to Section 6.1*)

Tools and Techniques

Contracting/Project Delivery Matrix

A *Contracting/Project Delivery Matrix* helps Project Owners determine which delivery method best meets their project requirements. By using the following matrix, a Project Owner, with advice from their Project Manager, can assess their tolerance for risk and project delivery capabilities to determine an appropriate contracting strategy.


Project Owner Has Ability to Manage and/or to Deliver Project
Project Owner should consider:
- Project Management by Owner
- Design – Bid – Build
- 3rd party Construction Management
Project Owner should consider:
- Project Management by Owner
- Construction Management by Owner
Project Owner has Low Tolerance for Risk (i.e. is willing to pay costs of risk transfer)
Project Owner has High Tolerance for Risk (i.e. is not willing to pay costs of risk transfer)
Project Owner should consider:
- Project Management by 3rd party
- Total Project Delivery by 3rd party with
  o penalties for failure to deliver
  o incentives for success
Project Owner should consider:
- Design Build / Engineer, Procure, Construction Manager
- Construction Management by 3rd party
Project Owner Has Limited Ability to Manage or to Deliver Project

Source: Stantec Consulting and Project Control Group

Outcome

The outcome of assessing the project contracting strategy results in the selection of a contracting strategy that best fits the Project Owner's ability to manage and deliver the project within their tolerance for risk.

Vendors bidding on a well defined scope of work offers the best method of getting competitive, fair-marketing pricing.

6.3 Procurement Plan

Overview

A *procurement plan* should help ensure that value for money is received. This is achieved by addressing the need to obtain all goods and services required for project delivery and operation on a competitive and transparent basis. No amount of studying budget numbers, cost analysis, or cost estimating can be a substitute for competitive tendering of work. Vendors bidding on a well defined scope of work offers the best method of getting competitive, fair-market pricing.

Inputs

Inputs to the *procurement plan* include the following:

Contribution Agreement	Sets out several requirements regarding the use of competitive and transparent procurement practices to ensure value for money for required goods and services (*refer to Part C*)
Owner Approved Project Scope Statement	Identifies the construction and non-construction elements of the project to be delivered (*refer to Section 2.2*)
Project Contracting Strategy	Helps Project Owners determine which delivery method best meets their project requirement (*refer to Section 6.2*)
Project Schedule	Lists decision making milestones to facilitate the procurement process (*refer to Section 5.4*)
Owner Organization Procurement Policies or Municipal Bylaws	Sets out procurement policies that are to be adhered to

Tools and Techniques

Procurement Plan

Procurement requirements stated in the Contribution Agreement must be adhered to, notwithstanding the organization's procurement policies or municipal bylaws. Those requirements include:

- A transparent, competitive process that ensures value for money
- Comply with trade agreements
- No conflict of interest
- Contracts are consistent with and incorporate provisions of the Contribution Agreement

Development of a *procurement plan* involves the following steps:

1. Identify goods and services required (e.g. consulting services, products, equipment, and furniture)
2. Establish when products or services are required
3. Analyze potential sources and availability considering long lead time (e.g. manufacturing, shipping, etc.)
4. Determine procurement method and associated steps (e.g. Request For Quotation, Request For Proposal, etc.)
5. Establish the procurement timeline taking into consideration procurement method, internal approval process, and lead time (incorporate these requirements in the *project schedule* as required)

The Project Manager should share and actively manage the *procurement plan* document throughout the life-cycle of the project.

Outcome

A well defined *procurement plan* secures the goods and services required for the project using best practices, ensures value for money, and satisfies the obligations of the Contribution Agreement.

Proper administration of contracts will result in fewer disputes between the parties, full receipt of goods and services agreed to, and a proper documentation trail to satisfy Contribution Agreement audit requirements.

6.4 Contract Administration

Overview

Contract Administration involves managing and enforcing rights and obligations under signed agreements. A contract represents an agreement between parties for the supply of goods and/or services, including certain risks, in exchange for consideration. Failure to properly monitor compliance with the terms of a contract may result in the Project Owner assuming responsibilities and risks that are already the obligation of another party.

Failure to properly enforce contracts can result in a de facto transfer of risk back to the Project Owner.

Inputs

Inputs to contract administration includes the following:

Contribution Agreement	Contains many obligations that the Project Owner must fulfill (*refer to Part C*)
Project Vendor and Consultant Agreements	Defines the terms agreed to by third party Consultants and Vendors and acts as the baseline for compliance reviews
Changes /Amendments to Project Vendor and Consultant Agreements	Documents revisions to the terms of third party goods and services agreements between the Project Owner and the third party Vendor(*refer to Section 4.2*)

Tools and Techniques

Agreement Summary

Administration of contracts is made easier if there is a manageable agreement summary which summarizes the major terms of all contracts. This technique does not replace the need to refer to the actual wording of the relevant contract, but it does make the process of understanding the document easier.

Typically, the *agreement summary* is attached to the front of the contract as a quick reference. An example of information to include in an agreement summary is shown below:

Parties to Agreement	
General Purpose of Agreement	
Term of Agreement (Start Date and Finish Date)	
Description of Services to be provided	
Payment Terms	
Terms and Conditions of Service Delivery	
Warranties and Representations	
Events of Default	
Notice Provisions	
Procedure for Amendments	
Amendments (if any)	

Contract Change Tracking System

It is imperative to have a system to not only track changes to contracts, but also ensure changes are implemented.

For managing changes to the Contractor contract, *refer to Section 4.2*. For other contracts, the Project Manager should utilize their experience and standardized industry forms to establish a project specific *contract change tracking system*.

Outcome

Proper administration of contracts will result in fewer disputes between the parties, full receipt of contracted goods and services, and a proper documentation trail to satisfy Contribution Agreement audit requirements.

Proper administration of contracts, including changes and amendments, will also help ensure value for money is achieved.

PROACTIVE RISK PLANNING AND MANAGEMENT

Health Check Questions Addressed in This Chapter

- ✓ Can you identify the three key risks to the success of your project?
- ✓ Do you understand how your key risks are being managed?

Chapter Contents

7.1 Risk Identification and Analysis
7.2 Risk Responses
7.3 Risk Monitoring and Reporting

An effective technique to identify and prioritize risks is through a facilitated risk workshop.

7.1 Risk Identification and Analysis

Overview

Risk is defined as an event or condition beyond the control of the Project Team that, upon occurrence, will impact the project.

Risk is directly related to the project implementation strategy. Consequently, risk must be managed top down to keep it aligned with the Project Owner's strategy and risks to that strategy.

The Project Owner's implementation strategy needs to respond to its obligations under the Contribution Agreement. The principal obligation is to complete a project by March 31, 2011.

For many experienced Project Managers, risk management is inseparable from the project implementation strategy.

Inputs

Inputs for project risk identification and analysis include the following:

Contribution Agreement	Contains a number of obligations (completion by March 31, 2011, etc.) that the Project Owner must fulfill in order to achieve success (refer to Part C)
Schedule "A"	Sets out the consequences to meet the required completion date; eligible costs, terms of financial assistance, contract awards, reporting requirements, records and audit rights, failure to perform, insurance and bonding, transfer and operation of infrastructure, conflict of interest and confidentiality, use of licensed marks, covenants, representations and warranties, events of default, and notice provisions (refer to Part C)
Project Charter	Guides the identification of risks to achieving the project priorities and the development of strategies to address risks (refer to Section 2.1)
Project Schedule	Defines the project implementation approach, assumptions, and constraints that may result in risk (refer to Section 5.4)

Tools and Techniques

Risk Identification

The starting point for *risk identification* is the prioritization of the obligations of the Project Owner created by the Contribution Agreement. For each Project Owner, the priorities will likely be different.

As Project Owner:

- Identify the three to five major risks within the Contribution Agreement that concern you
- Acknowledge that the project itself has certain risks that should also be identified
- Consult the Project Manager for their list of major risks
- Align the major risks with the Project Manager and establish a plan to formalize the *risk identification* and analysis process

Technique for identifying risks include the following:

1. **Risk Workshop**
   An effective technique to identify and prioritize risks is through a facilitated *risk workshop*. At the *risk workshop*, the Project Owner, Project Manager, and key Project Team members identify and discuss their risk concerns.

2. **Expert Judgement**
   Expert judgement is often used to identify risks. Potential sources include the following:
   - Project Owner and its organization
   - Project Manager
   - Consultants
   - Key Stakeholders

To identify risks originating in the Contribution Agreement, create a table of each of the sections and then identify the risks to fulfilling those obligations.

Section Heading	Risks to Fulfilling Obligations
Signature Pages	
Terms and Conditions	
Definitions and Interpretation	
Term of Agreement	
Eligible Costs	
Financial Assistance	
Project Award, Consultations, Management	
Reporting Requirements	
Records and Audit	
Overpayment and Failure to Perform	
Insurance and Bonding	
Indemnity	

Section Heading	Risks to Fulfilling Obligations
Transfer and Operation of Infrastructure	
Conflict of Interest and Confidentiality	
Recognition	
Representations, and Warranties	
Default, Enforcement and Termination	
Notice	
Miscellaneous	
Description of the Project	
Eligible and Ineligible Costs	
Financial Assistance	
Government of Canada Requirements	
Additional Provisions	
Communications Requirements	
Expenditure and Job Creation Report	
Claims and Progress Statement	
Final Report	
Declaration of Substantial Completion	
Aboriginal Consultation Protocol	

To identify other project related risks, create a table of the main elements of the project and then identify risks associated with that element.

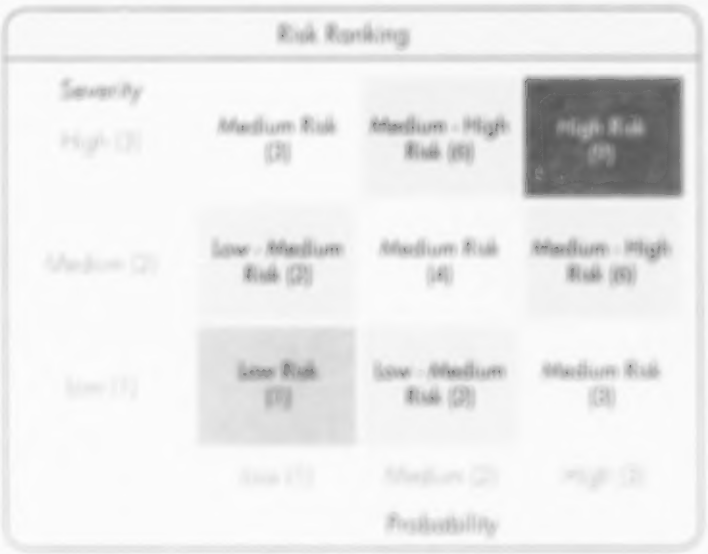
Project Element	Key Risk
Project Management and Governance	Failure to complete on schedule
Contribution Agreement Compliance	
Design	
Procurement	
Construction and Commissioning	
Regulatory	
Communications	
Operational Transition	

The preceding risk table is not consistent with the organization of the funding agreements, as such, its application is limited to only certain funding agreements.

Risk Analysis and Prioritization

After identification of the risks, determine the probability and consequence of each should it occur. This allows identification of the higher severity and higher probability risks so that they can be addressed on a priority basis.

The following matrix can be used to categorize the severity and probability of identified risks.



Severity/Probability Factor Rating (SPR)

- 9 Prepare Risk Response & Detailed Contingency Plan
- 6 Prepare Risk Response & Brief Contingency Plan
- 2-3 Prepare Risk Response
- 1 No Formal Response

The severity axis at the left of the matrix uses a low, medium, and high ranking. The probability axis at the bottom of the matrix uses a low, medium, and high ranking. The intersection of severity and probability results in a risk ranking. For example, a risk that has high severity and high probability is ranked a "High Risk" and therefore requires the preparation of a risk response and a detailed contingency plan. A risk that is low severity and low probability is ranked a "Low Risk" and requires no formal response.

Typically the risk analysis and prioritization is done at a risk workshop, that involves perspectives from the Project Owner, Project Manager, and key Project Team members.

Outcome

The outcome of risk analysis and prioritization is the knowledge necessary to make informed choices on how to respond to those risks. Risk identification is a top down process by which strategies for risk management remain aligned with achieving the Project Owner's priorities.

Risk Analysis and Prioritization
After identification of the risks, determine the probability and consequence of each should it occur. This allows identification of the higher severity and higher probability risks so that they can be addressed on a priority basis.

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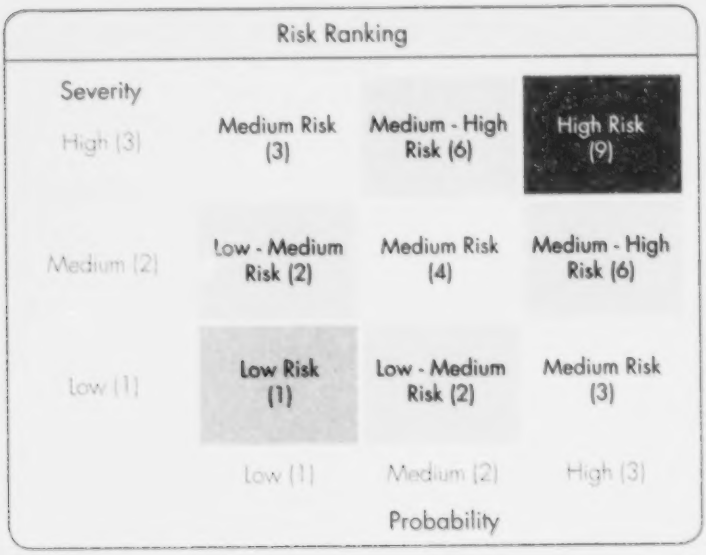

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Typically the *risk analysis and prioritization* is done at a risk workshop, that involves perspectives from the Project Owner, Project Manager, and key Project Team members.

Outcome

The outcome of *risk analysis and prioritization* is the knowledge necessary to make informed choices on how to respond to those risks. *Risk identification* is a top down process by which strategies for risk management remain aligned with achieving the Project Owner's priorities.

It is important that each risk response be assigned to someone that is responsible for implementing and monitoring the risk response.

7.2 Risk Responses

Overview

The three major ways to address risk are risk avoidance, transfer, and acceptance:

Risk avoidance is avoiding the risk altogether. The risk is avoided by not taking any action that might cause the risk to occur. For example, if the use of certain construction materials that have long lead times associated with production and/or delivery may jeopardize the March 31, 2011 substantial completion, then a risk avoidance strategy would be to utilize materials that are readily available.

Risk transference is achieved by transferring risk to a third party through a contract. For example, a construction contract transfers risk to the Contractor.

Risk acceptance means the Project Owner accepts the exposure to the risk, and either provisions for it or develops a mitigation strategy to lessen its probability and/or severity. The practice in municipalities to maintain reserve funds for unplanned capital costs (road washouts, etc.) is an example of risk acceptance with provisions. Early procurement of long lead materials is an example of mitigating the risk of a schedule delay.

Inputs

The inputs to the development of appropriate risk responses are:

Risk Identification	Identifies risk so that there can be consensus on what the risk is before addressing what to do about the risk (*refer to Section 7.1*)
Risk Analysis and Prioritization	Provides risk assessment with an estimate of severity and probability (*refer to Section 7.1*)

Tools and Techniques

Risk Register

The most common tool for documenting risk responses is to build a *risk register* similar to the example below:

Project Element	Key Risks	Probability	Severity	Rating	Risk Response	Risk Owner
Project Management and Governance	Failur ; to complete on schedule	Medium (2)	High (3)	6	Risk Transference by entering into a design-build contract	Project Manager
Contribution Agreement Compliance						
Design						
Procurement						
Construction and Commissioning						
Regulatory						
Communications						
Operational Transition						

Development of this register comes as a collaborative result of the *risk workshop* and application of the severity/probability rating matrix in order to establish appropriate risk responses. It is important that each risk response be assigned to someone that is responsible for implementing and monitoring the risk response.

Outcome

The outcome is a completed *risk register* which details the risk response for each risk identified. This enables the Project Owner and Project Manger to proactively mange risk.

Project risks will change over the life-cycle of a project.

7.3 Risk Monitoring and Reporting

Overview

Project risks will change over the life-cycle of a project. It is important that risks are regularly monitored, new risks identified, and risk responses reassessed throughout the duration of the project, as part of regular project status reporting.

Inputs

Inputs for *risk monitoring* and reporting include the following:

Risk Register	Identifies risks and agreed upon response strategies *(refer to Section 7.2)*

Tools and Techniques

Risk Monitoring

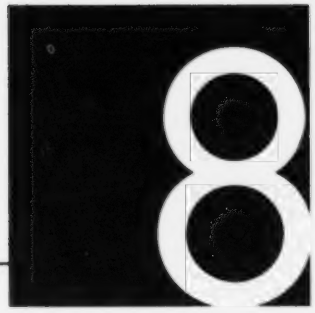
An effective approach to *risk monitoring* is to regularly review and distribute the *risk register* to key stakeholders with updated risks and response strategies. An example of an updated *risk register* is shown below.

RISK EVENT (Cause)	**IMPACT** (Result)	**Probability** (Low/High)	**Impact** (Low/High)	**Risk Rating** (1-4)	**RISK RESPONSE**		
					Response (Avoid, *Transfer*, Accept)	**Risk Mitigation/ Preventative Action**	**Resp.**
KEY RISKS (By Risk Rating)							
• Organization's internal approval processes for (1) academic and (2) support services are lengthy	• Delay to implementation while awaiting formal approval	H	H	1	**Accept** (Mitigate)	• Regular liaison with Organization + updates to keep informed • Incorporate approval process into schedule	Project Owner
• Changes to facility design after approval	• Delay in project timelines • Increased project costs	L	H	2	**Avoid**	• Establish change management policy + manage vigorously	Project Owner
• Tenders received are over budget	• No budget available for increased costs	L	H	2	**Accept** (Mitigate)	• Reduce scope or quality to maintain budget	Project Manager
• Substantial performance of construction is not reached on schedule (31 March 2011)	• Fit-out and occupancy period reduced • Delay in commencement of operations	L	H	2	**Accept** (Mitigate)	• Enforce contract provisions for substantial completion • Commence overtime work to maintain completion date	Project Manager

Outcome

Risk monitoring and reporting is an essential part of risk management and ensures that the Project Team remains informed on the status of project risk and equipped to proactively manage risk.

ACTIVE STAKEHOLDER ENGAGEMENT AND REPORTING



Health Check Questions Addressed in This Chapter

✓ Do you have a list of all community consultations, approvals, permits, and licenses that are required for the project? (e.g. environmental approvals, building permits, operating licenses)

Chapter Contents

8.1 Stakeholder Engagement and Management
8.2 Communications Management
8.3 Document Management
8.4 Project Reporting
8.5 Regulatory Approvals Management

Although some stakeholders may not have a direct financial interest in the project, they need to be identified as they may have a significant influence over its process, timetable, and costs.

8.1 Stakeholder Engagement and Management

Overview

Stakeholder engagement and management is the process of communicating and working with stakeholders (both internal and external) to meet their needs and address issues as they occur. Engaging stakeholders and actively managing expectations increases the likelihood of the project meeting its goals and objectives, limits disruptions from unsatisfied stakeholders and increases the probability of project acceptance by users and others.

Inputs

Good sources for identifying project stakeholders and their interests in the project include the following:

Project Charter	Defines the overall project goals and major commitment milestone dates (*refer to Section 2.1*)
Project Organizational Charts	Identifies the Project Team organizational structure (internal and external to the Client team), major lines of reporting and coordination (*refer to Section 3.1*)
Procurement Plan	Identifies the form of contract and general approach to procurement of services and equipment (*refer to Section 6.3*)
Governing Regulatory Authorities	Validates what regulatory processes affect the project and therefore what regulatory bodies must be involved to provide reviews, approvals, permits, etc.
Contribution Agreement	Identifies specific requirements for consultations (*refer to Part C*)

Tools and Techniques

Stakeholder Register

Project stakeholders are persons and organizations such as decision makers, users, the Project Owner, community members, authorities of jurisdiction, government agencies, and special interest groups that are actively involved in the project or whose interests may be positively or negatively affected by the execution or completion of the project. Although some stakeholders may not have a direct financial interest in the project (e.g. regulatory authorities, adjacent landowners, etc.), they need to be identified as they may have a significant influence over its process, timetable, and costs.

A *stakeholder register* is a simple way to organize all identified project stakeholders. The Project Manager should analyse the interest and influence that each stakeholder may have over the project outcome and identify the potential impact.

Users of the project infrastructure should be considered special stakeholders. They will require very structured opportunities for input throughout the planning and design process.

An example *stakeholder register* is shown below:

Stakeholder	Stakeholder Interest(s) in the Project	Assessment of Impact	Potential Strategies for Gaining Support or Reducing Obstacles

Development of a *stakeholder register* comes through a stakeholder meeting involving the Project Owner, Project Manager, and key Project Team Members.

Some stakeholders simply need to be monitored, which requires minimal effort. Others, such as community interest groups or adjacent land owners, may need more active engagement throughout the project. Engagement strategies on successful projects include taking a proactive approach towards:

- Community open houses
- Municipal/regulatory coordination meetings
- Project websites/intranet sites

Outcome

Successful project stakeholder engagement and management contributes to a more proactive approach to managing a project. Typically, additional activities need to be added to the *project schedule* in response to strategies identified for engaging stakeholders. Identified risks should be captured and managed as part of project *risk monitoring and reporting* (discussed in *Section 7.3*).

The project *communications plan* (discussed in *Section 8.2*) should be updated when required in order to align with the identified stakeholder engagement and management strategies.

Most project failures can, in part, be attributed to a breakdown in communication. Communication at the right level and with the right people is at the heart of effective project management.

8.2 Communications Management

Overview

Proper communications is one of the most effective ways to improve project success. Most project failures can, in part, be attributed to a breakdown in communication. Communication at the right level and with the right people is at the heart of effective project management.

Effective communications management creates a bridge between diverse stakeholders involved in the project, connecting them with information necessary to fulfill their roles and/or help manage expectations.

Inputs

The *stakeholder register* is a primary input to developing a *communications plan*. The *stakeholder register* identifies the key stakeholders that need to be addressed in the *communications plan*. Often stakeholder engagement plans are an integral part of an overall communications plan. Inputs include:

Project Schedule	Defines the overall project milestone dates and activities (*refer to Section 5.4*)
Stakeholder Register	Identifies all major project stakeholders and the strategies to manage their involvement in, and interaction with, the project (*refer to Section 8.1*)
Ministry Policies	Identifies communications obligations including specific confidentiality limitations and coordination with the Freedom of Information and Protection of Privacy Act
Contribution Agreement	Identifies specific communications obligations (*refer to Part C*)

Tools and Techniques

Communications Plan

When developing a *communications plan*, consideration should be given to involving individuals outside the Project Management Team that have specific communications expertise.

The *communications plan* can be formal or informal, detailed or broadly framed, based on the needs of the project and must address the requirements of the Contribution Agreement. For each key stakeholder, the communications plan should address:

- What information they need
- When and how often they need it
- How it will be shared with them, and by whom

Communications methods typically fall into three categories:

1. **Interactive Communication**
   Typically involves interaction between two or more parties. It is the most direct. Examples include meetings, town halls, video conferencing and phone calls.

2. **Push Communication**
   Written communication sent to specific recipients based upon need and includes letters, faxes, newsletters, press releases, emails, etc.

3. **Pull Communication**
   Typically used for large audiences or large volumes of information where access is at the discretion of the Recipient. Includes intranet sites, knowledge repositories, etc.

Contents of a typical *communications plan* are shown below:

Communications Plan Contents

- Resources allocated for communication activities, including time and budget
- Stakeholder communication requirements
- Information to be communicated, including language, format, content, and level of detail
- Reason for the distribution of that information
- Timeframe and frequency for information distribution
- Person responsible for communicating the information
- Person responsible for authorizing release of confidential information
- Person or groups who will receive the information
- Methods or technologies used to convey the information
- Escalation process for issues that cannot be resolved
- Method for updating and refining the communications plan as the project progresses and develops
- Communication constraints from specific legislation, regulation, and organizational policies
- Glossary of common terminology
- Define communication objectives
- Identify requirements for media scan
- Outline communication vulnerabilities

Outcome

Proper consideration of communications management throughout the project life-cycle is essential for project success and will require appropriate resources and funding within the *project budget*.

The *project schedule* will need to be augmented with communications activities from the *communications plan* to ensure the benefits of communication are realized at the appropriate times on the project. In fact, communications tactics themselves often form part of risk mitigation strategies to respond to various stakeholder groups.

8.3 Document Management

A document management system needs to be developed that complies with the obligations under the Contribution Agreement and specific requirements of the project.

Overview

Document management is intended to manage and control the distribution and storage of correspondence, drawings, specifications, reports and other project documents between the Consultants, Contractors, Project Owner and stakeholders. The document control policies and procedures established for the project need to address both hard and soft copy documents.

Inputs

Inputs into document management include the following:

Document Management Policies	Outlines the Project Owner's records management policies
Contribution Agreement	Stipulates documentation management obligations under the Contribution Agreement (*refer to Part C*)

Tools and Techniques

Document Management System

A *document management system* needs to be developed that complies with the obligations under the Contribution Agreement and specific requirements of the project.

The *document management system* should allow the Project Owner and the Project Team to efficiently:

- Trace receipt and distribution of a document and previous versions
- Identify current information
- Trace information critical to the decision making process
- Provide a comprehensive and structured record of project information, and archival records, and make it available to the Project Management Team throughout the project duration
- Facilitate access to appropriate information and supporting documentation for audit purposes

Outcome

A *document management system* that is well thought out and implemented early and consistently throughout the project will lead to easily accessible and retrievable information for management and audit purposes.

Project reporting is a fundamental obligation to receive funding under the Contribution Agreement.

8.4 Project Reporting

Overview

Project reporting is more than just a paper trail. It is meant to inform decision making by the Project Owner and Project Manager.

Project reporting involves preparing and sharing performance information such as status reports, progress measurements and forecasts. Performance is measured against approved baseline targets (e.g. budget, scope, baseline schedule, etc.). Regular (typically monthly) performance reporting is typically a contractual obligation of funding ministries but also acts as a management communication and control tool and an early warning system for problem avoidance.

Project reporting is a fundamental obligation to receive funding under the Contribution Agreement.

Inputs

The Project Management Team should establish a standard performance reporting process that takes inputs from a variety of sources on a regular monthly basis. Common inputs include the following:

Scope Management	Provides progress information on any contemplated or approved project scope changes (*refer to Chapter 4*)
Cost Control	Provides cost management information from the cost control system including committed cost update, forecast to complete, contingency status, and summary of changes (*refer to Section 5.2*)
Schedule Control	Provides schedule status information from the schedule control system comparing forecast schedule to baseline (*refer to Section 5.4*)
Risk Monitoring and Reporting	Identifies changes to the major project risks including any change in their status or potential impact (*refer to Section 7.3*)
Previous Project Reports	Identifies action items committed to previously and current status
Contribution Agreement	Identifies specific reporting obligations (*refer to Part C*)

For each of the above topics, an analysis of the status, issues, and risks needs to be undertaken by the Project Manager for input into the report.

Tools and Techniques

Project status reports put critical information on a single page or two that summarizes the overall current status together with the issues and risks to delivering the project.

Project Status Report

An effective, management friendly, *project status report* puts critical information on a single page or two that summarizes the overall current status together with the issues and risks to delivering the project.

Establishing a standard reporting format and standard date for report issuance (typically monthly) helps to align all parties and enables the Project Owner to make informed decisions.

A sample *project status report* dashboard is shown below:

Status	Item	Issues & Risks
G	Governance	Appropriate Project Sponsorship and Governance now in-place.
Y	Scope Management	Number of contemplated scope changes may impact budget.
Y	Cost Management	Budget pressures due to contemplated scope changes.
R	Schedule Management	Construction delays may impact targeted substantial completion. Corrective action underway.
G	Project Resources	No significant issues.
Y	Risk Management	Schedule slippage and scope creep risk put project performance targets at risk.
G	Stakeholder Engagement	Active stakeholder engagement underway.
G	Operational Readiness	Operational readiness planning underway.

Source: Stantec Consulting and Project Control Group

More elaborate tools (S-curves, earned value reports, etc.) are also often used on complex projects but may not be appropriate for many projects receiving stimulus funding.

Outcome

Regular project reporting on status and performance will provide the Project Owner with a clear indication of project status, areas of concern, and actions to be taken.

Tools and Techniques

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More elaborate tools (S-curves, earned value reports, etc.) are also often used on complex projects but may not be appropriate for many projects receiving stimulus funding.

Outcome

Regular project reporting on status and performance will provide the Project Owner with a clear indication of project status, areas of concern, and actions to be taken.

Seeking input directly from the Regulatory Authority on process steps and timing is crucial to reducing risk.

8.5 Regulatory Approvals Management

Overview

Infrastructure projects require regulatory approvals which may be as simple as a building permit or as complicated as an environmental assessment.

It is essential that anticipated regulatory approvals be identified at project initiation and incorporated into the *project schedule*.

The status of each approval needs to be known and reported on regularly.

Inputs

Inputs to identifying all required regulatory approvals are as follows:

List of Regulatory Authorities	Provides a list to check to help identify required approvals
Stakeholder Register	Identifies all major project stakeholders and the strategies to manage their involvement in, and interaction with, the project (*refer to Section 8.1*)

Typical List of Regulatory Authorities

- Planning authorities (e.g. Regions, Counties, Townships, Cities, Towns, Villages)
- Heritage Authorities
- Conservation Authorities
- Federal Regulatory Groups (e.g. Department of Fisheries and Oceans, Transport Canada)
- Federal Affected Departments (e.g. Department of Indian and Northern Affairs, Environment Canada)
- Federal Utilities (e.g. TransCanada Pipelines)
- Federal Railways
- Provincial Regulatory Groups (e.g. Ministry of Environment, Ministry of Natural Resources)
- Provincial Affected Agencies (e.g. Ontario Municipal Board)
- Provincial Utilities
- Provincial Railways
- Licensing Authorities (including those with jurisdiction over the actual operations associated with the infrastructure)

Tools and Techniques

Regulatory Approval Matrix
Following identification of the regulatory approvals associated with the project, understanding and managing their requirements is essential. Creating a matrix of authorities with the following information is an essential management tool:

- List of likely Regulatory Authorities
- What authority they have over the project
- What their submission requirements are
- What their approval process is and expected durations

On a regular basis, the status of each approval needs to be reviewed and managed.

Due to the uncertainty over regulatory approval timing, the Project Management Team needs to incorporate into the *project schedule*, specific steps for submission preparation, regulatory review, and approvals using realistic, not optimistic, durations. Seeking input directly from the Regulatory Authority on process steps and timing is crucial to reducing risk.

Other ways to mitigate the risks associated with regulatory approvals include:

- Transferring the obligation to secure an approval, license or permit to another party like the Contractor as part of their contractual obligation
- Planning to initiate the process as early as practically possible to take the approval process off the project critical path
- Introducing proactive steps to help facilitate the approval process with Authorities such as conducting pre-submission familiarization sessions, submission presentations and post submission check-ins

The *project budget* should also provide for costs associated with regulatory advice and application fees.

Project teams should actively pursue pre-consultations with regulatory authorities prior to formal application to avoid potential delays associated with redesign and revising applications. Formal submissions for regulatory approvals should be made early in the project to allow the opportunity to respond to issues that may surface during the permitting process to be addressed without impacting the *project schedule*.

Outcome

Identifying, planning and managing regulatory approvals within the project plan is critical for managing the risks associated with securing timely approvals. This is especially critical for those approvals involving public process. The *project budget* and *project schedule* must be established in a way that accommodates the costs and steps respectively, for all regulatory approvals and licenses; construction and operations related.

The Aboriginal Protocol sets out any required Aboriginal consultation that a Project Owner may have to undertake to assist the Crown in satisfying its duty.

8.6 Aboriginal Consultation

Overview

First Nations and Métis communities may have constitutional rights that are impacted by a project. The Crown may thus be required to consult that First Nation or Métis community. Aboriginal consultation is the process of consulting with Aboriginal communities as required, working with them to address concerns as raised and providing accommodation as required.

A Project Owner may be required by the terms of the Aboriginal Protocol contained in its Contribution Agreement to carry out Crown consultation with Aboriginal groups. The Aboriginal Protocol may also require that the Project Owner contact Ontario if it is contacted by an Aboriginal group or if it discovers Aboriginal archaeological resources on the project site.

Inputs

Contribution Agreement (Aboriginal Protocol Section)	Identifies any Crown consultation obligations that a Project Owner must fulfill (*refer to Part C*)
Province of Ontario	Identifies to the Project Owner the Aboriginal communities who must be consulted, where the Project Owner is to carryout Aboriginal Crown consultation. Additional Aboriginal communities may be added to the list provided to the Project Owner by Ontario where additional Aboriginal interests are later identified by Ontario or as a result of archaeological resources being discovered. As well, Aboriginal communities may identify themselves to the Project Owner.

Tools and Techniques

Project planning should allow for any required consultation to be undertaken pursuant to the Aboriginal Protocol.

A municipal Project Owner should consider whether its activity of undertaking the project may trigger a duty to consult. Any consultation that the municipal Project Owner may be required to undertake pursuant to the Aboriginal Protocol may satisfy this obligation but further consultation may also be required.

A Project Owner may also consider whether it wishes to engage Aboriginal communities regarding the project as interested parties. Aboriginal engagement is discussion with aboriginal communities that is not required by the terms of the Aboriginal protocol.

A register of Aboriginal communities is a simple way to organize all identified Aboriginal communities. The Project manager should analyze the interests and concerns of each Aboriginal group and determine any impact that the project may have on that community as well as, where appropriate, accommodation measures that may address those interests. Maintaining a register will assist a Project Owner in complying with its obligations under the Aboriginal Protocol.

Aboriginal consultation strategies and requirements are set out in the Aboriginal Protocol.

Outcome

Successful aboriginal consultation ensures that Ontario will satisfy any duty to consult obligations it may have and that the honour of the Crown is maintained.

OPERATIONAL READINESS

Health Check Questions Addressed in This Chapter

✔ Do you have a plan to operate your project when it is ready?

Chapter Contents

9.1 Project Handover and Closeout
9.2 Operational Readiness Plan

Handover and closeout activities should be identified early during project planning to ensure that adequate resources are assigned to this process.

9.1 Project Handover and Closeout

Overview

Project handover and closeout is often neglected and can lead to the "project that never finishes" syndrome. Consequently, handover and closeout activities should be identified early during project planning to ensure that adequate resources are assigned to this process.

Inputs

Project handover and closeout process requires the following inputs:

Owner Approved Project Scope Statement	Sets the basis for understanding what the project is to include and how it is intended to be operated (*refer to Section 2.2*)
Project Schedule	Shows in detail when commissioning activities begin and end (*refer to Section 5.4*)
Contracts	Identifies contractual closeout obligations
Contribution Agreement	Identifies closeout obligations (*refer to Part C*)

Tools and Techniques

Typical Project Handover and Closeout Process

There are five *typical project handover and closeout processes* that ensure the project will be ready to operate when completed:

1. **Contract Closeout**
   Contract closeout includes:
   a) Closing out of all contracts by reviewing those contracts and conducting due diligence to ensure that all Project Owner obligations have been satisfied, all parties to the contracts have met their obligations, and that there are no other outstanding matters to be addressed
   b) Claims settlement, being the settling of outstanding disputes between the Project Owner and contracted parties
   c) Confirming that all warranties and guarantees for work and equipment are in place

2. **Financial Closeout**
   Financial closeout includes issuing the *final report* under the Contribution Agreement and receiving any remaining funding (if any funding is withheld)

3. **Project Staffing Closeout**
   Project staffing closeout involves the release of all temporary and contract staff and Consultants that have been involved on the project

4. **Administrative Closeout**
   Administrative Closeout involves the assembly and archiving of all project documentation

5. **Operational Handover**
   Handover of assets to operating staff typically involves:
   a) Verification that the project has achieved the intended result and that facility systems and equipment perform in accordance with specifications and design intent prior to being put into service
   b) Handover of documentation including:
      i) Inspection, testing, and start up reports of all the systems of the facility to ensure that they fulfill performance requirements
      ii) Production of comprehensive, consolidated operation and maintenance manuals
   c) Operation and maintenance staff training and familiarization with the building systems

Conducting a proper *project handover and closeout process* results in wrapping up contractual and financial obligations in a manner consistent with requirements under the Contribution Agreement.

Outcome

Conducting a proper *project handover and closeout process* results in wrapping up contractual and financial obligations in a manner consistent with requirements under the Contribution Agreement.

Operational transition planning involves a great deal more than simply the physical move. It encompasses planning for the transition and start-up of all aspects necessary to operationalize the new infrastructure.

9.2 Operational Readiness Plan

Overview

To the public, success at project completion is not achieved simply by the infrastructure being completed and ready, but also requires that the operations side of any new infrastructure is ready to meet the public needs.

Infrastructure and facility projects often bring new or modified operational requirements once they are constructed. It is essential that Project Owners understand the nature of the change from the current operational state to the future operational state and ensure that an operational readiness plan is in place to manage the process of transition.

Inputs

Development of an operational readiness plan requires the following inputs:

Project Charter	Provides the future state vision including the objectives and operational expectations of the new infrastructure (*refer to Section 2.1*)
Anticipated Operating Budget	Offers insight into the operational expectations for the new infrastructure along with financial constraints that will exist (these need to be understood in order to establish an understanding of the gap between current and future operations, which drives the transition work to be accomplished)
Project Schedule	Provides the major date milestones for delivering the facility or infrastructure and identifies key coordination points for operational transition planning (*refer to Section 5.4*)
Regulatory Approvals	Mandates the requirements for licences and certification necessary to commission and operate the new infrastructure (*refer to Section 8.5*)
Operations Staff	Provides input in the planning and execution of operational transition activity
Contribution Agreement	Provides provisions (for the transfer and operation of infrastructure) that anticipate, in part, how the new infrastructure will be used, maintained, and operated after substantial completion (*refer to Part C*)

Tools and Techniques

Operational Transition Deliverables List

Similar to the capital side of the project, the operational transition side has a scope of work associated with it that can be captured in a chart with each deliverable assigned to a responsible individual.

Operational transition planning involves a great deal more than simply the physical move. It encompasses planning for the transition and start-up of all aspects necessary to operationalize the new infrastructure.

The Project Management Team needs to consult with the operations staff who best understands the nature of their transition work, when establishing the list of deliverables and ultimately the timelines for completing them.

A typical *operational transition deliverables* list is shown below.

Operational Transition Plan Deliverables

- Revised financial plans and operating budgets
- New operating models, business practices, policies and procedures
- Information Technology procurement, installation, commissioning
- Furniture and equipment procurement, installation, commissioning
- New operating software systems and integration with legacy systems
- Recruitment strategy and staff hiring, new job positions, revised Human Resources policies
- Staff orientation and training
- Operating contracts, maintenance contracts and service level agreements
- Operating licences and certifications
- Labour relations and union agreements
- Internal and external communications and grand opening events
- Branding, advertising
- Change management support to staff
- Post occupancy evaluation and assessment

Operational transition work can be planned and managed using the same project management tools and techniques as the capital aspects of the work.

Operational Transition Plan

Operational transition work can be planned and managed using the same project management tools and techniques as the capital aspects of the work. Operational transition work requires clear accountabilities and a governance structure and must be adequately resourced with skilled and empowered individuals.

Working closely with designated leads from the operations staff, the Project Management Team can help ensure that the major deliverables, schedule, budget, risks, and stakeholder planning information are captured in the operational transition plan. The progress of the operational transition work should be tracked and reported on in a manner consistent with the rest of the project.

Clear Opening Day View

Establishing a clear definition of what opening day (i.e. the first day of operations) looks like operationally is important so that the Project Team has a common goal that it can work towards. Often the level of service, certain systems, or even portions of the infrastructure may not be fully operational day one for specific reasons (e.g. a pool not being available on day one of a new community centre). A simple chart that captures "what-is" and "what-is-not" available on opening day from a variety of perspectives (actual infrastructure, services offered, technology systems, staffing, equipment, access, etc.) helps ensure alignment between all players.

Communicating a *clear opening day view* to stakeholders in advance helps to manage their expectations and to ensure that a successful opening is not unnecessarily tarnished by misunderstandings.

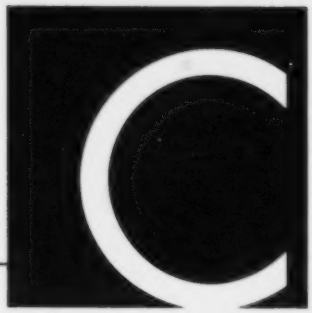
Outcome

Planning for operational transition in a comprehensive way captures operational preparations within the overall project management approach, and helps ensure a seamless transition into operating the new infrastructure that aligns with the expectations of stakeholders.

CONTRIBUTION AGREEMENT OBLIGATIONS

C

OVERVIEW OF CONTRIBUTION AGREEMENTS



The following table provides a practical overview of typical provisions common to most of the many forms of the Ontario Government's Contribution Agreements prepared under the Canada's Economic Action Plan stimulus funding. Each Recipient of funding should consult legal counsel and professional advisors for advice on the provisions of its specific signed agreements.

This section of the manual is not consistent with the organization of the housing agreements, as such, its application is limited to only certain funding agreements.

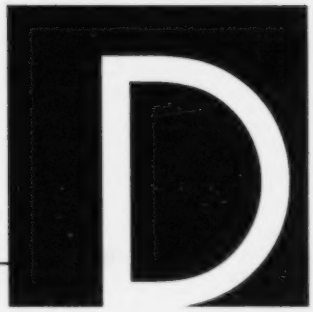
Typical Section Heading	Typical Provisions
Signature Pages	Indicates which ministry is involved; names the Recipient Corporation. Includes date of agreement, and signatures.
Terms and Conditions	Principal terms of agreement.
Definitions and Interpretation	Defines the terms that are used throughout the agreement.
Term of Agreement	Agreement is in effect from the date set out on the first page of the agreement, up to and including the expiration date.
Eligible Costs	Outlines the types of costs that are eligible to be paid for by the financial assistance and those that are not eligible.
Financial Assistance	Outline of the process by which funds will be transferred under the agreement.
Project Award, Management and Completion	Outlines RFP and contracting requirements.
Reporting Requirements	Describes the reporting requirements, including project status reports, expenditure and job creation reports, claims, and final report.
Records and Audit	Claims records must be kept for six years. The Recipient may be audited by The Auditor General of Canada and/or The Auditor General of Ontario, and the funding body may require external auditors.
Overpayment and Failure to Substantially Perform Contract within Timelines	Illustrates the framework for total 'allowable' financial assistance and the penalties for overpayment to the Recipient.
Insurance and Bonding	Outlines project insurance and bonding requirements.
Indemnity	Expresses that the funding body is an indemnified party against bodily harm or damages.

Typical Section Heading	Typical Provisions
Transfer and Operation of Infrastructure	The Recipient is meant to retain ownership of the asset resulting from the project for at least 10 years, otherwise faces a repayment penalty. Recipient must share any excess revenue over cost that is generated in the first 10 years, in proportion to the funding body's percentage of contribution to the cost of the asset.
Conflict of Interest and Confidentiality	No conflict of interest allowed. Disclose any potential conflict of interest.
Recognition	Requirement to recognize the Governments of Canada and Ontario in advertising and joint (federal/provincial/municipal) publicity. Guidelines for use of licensed marks.
Covenants, Representations, and Warranties	Outlines the covenants of the Recipient and governance requirements for the project.
Default, Enforcement and Termination	Outlines the events of default.
Notice	How notice is to be distributed.
Miscellaneous	Miscellaneous items.
Description of the Project	Names the funding body, the Recipient, the construction start date, and the work description.
Eligible and Ineligible Costs	Itemizes the costs that are eligible and costs that are ineligible for financial assistance.
Financial Assistance	A statement of the total eligible costs and the maximum financial assistance levels from the Federal and Provincial governments. Ten percent (10%) of the maximum financial assistance will be held back until receipt of the final report.
Government of Canada Requirements	Outlines matters of concern to the Federal government, such as access to information, indemnities, etc.
Additional Provisions	Miscellaneous additional provisions including declaring where notice is delivered. Allows for statement of project specific provisions and reporting requirements. Includes an estimate of the useful life of the project infrastructure.
Communications Requirements	Outlines various matters of concern to the Governments of Canada and Ontario such as signage and joint events.
Expenditure and Job Creation Report	Must quantitatively lay out expenditure forecast by fiscal quarter through Q4 2011. Must quantify average number of temporary jobs created and sustained.
Claims and Progress Statement	Represents the forms that need to be filled out by the Recipient to claim funds.
Final Report	All costs that were invoiced are itemized by category and totalled (Engineering/ Design, Environmental, Project Management, Construction, and miscellaneous).
Solemn Declaration of Substantial Completion	Certification of substantial completion of the project as of a specific date.
Aboriginal Consultation Protocol	Outlines the responsibility of Ontario and of the Recipient with regards to the carrying out of obligations Ontario might have to consult Aboriginal communities

SOURCES OF ADDITIONAL HELP

D

SOURCES OF ADDITIONAL HELP



The following contact information is provided in the event Project Owners require additional information regarding their obligations under their respective Contribution Agreements:

Contact Information

Infrastructure Stimulus Fund (ISF) and Building Canada Fund (BCF)
Infrastructure Programs Unit
Rural Community Development Branch
Ministry of Agriculture, Food and Rural Affairs
1 Stone Road West, 4th Floor
Guelph, ON N1G 4Y2
Phone: 1-888-466-2372
Email: bcf.cc@ontario.ca
Fax: 519-826-4336
Attention: Dino Radocchia, Manager

Housing Programs
Housing Programs Branch
Municipal Affairs and Housing
777 Bay Street, 2nd Floor
Toronto, ON M5G 2E5
Phone: General Inquiry: (416) 585-5013
Fax: 1-416-585-7003
Attention: Director, Housing Programs

Municipal Service Office - Central
777 Bay Street, 2nd floor
Toronto, ON M5G 2E5
General Inquiry: (416) 585-6226
Toll Free: 1-800-668-0230
Fax: (416) 585-6882

Municipal Service Office - Eastern
8 Estate Lane
Rockwood House
Kingston, ON K7M 9A8
General Inquiry: (613) 548-6822
Toll Free: 1-800-267-9438
Fax: (613) 548-6822

Municipal Service Office - Western
659 Exeter Road, 2nd Floor
London, ON N6E 1L3
General Inquiry: (519) 873-4020
Toll Free: 1-800-265-4736
Fax (519) 873-4018

Municipal Service Office - Northeastern
159 Cedar Street, Suite 401
Sudbury, ON P3E 6A5
General Inquiry: (705) 564-0120
Toll Free: 1-800-461-1193
Fax: (705) 564-6863

Municipal Service Office - Northwestern
435 James Street, Suite 223
Thunder Bay, ON P7E 6S7
General Inquiry: (807) 475-1651
Toll Free: 1-800-465-5027
Fax: (807) 475-1196

Recreational Infrastructure Canada Program in Ontario (R In C)
Sports, Culture and Tourism Partnerships Secretariat
Investment and Development Office
Ministry of Tourism
700 Bay Street, 15th Floor
Toronto, ON M5G 1Z6
Phone: (416) 314-1961 or 1-866-219-5001
Fax: (416) 314-1382
Attention: Manager

Knowledge Infrastructure Program (KIP)
Postsecondary Finance and Information Management Branch
Ministry of Training Colleges and Universities
900 Bay Street, Mowat Block, 7th Floor
Toronto, ON M7A 1L2
Phone: 416-325-1952
Email: barry.mccartan@ontario.ca
Fax: 1-416-325-1959
Attention: Barry McCartan, Director